MITSUBISHI
ELECTRIC

LCD Display Monitor

型号

MDT552S (A2129)

使用说明书
USER'S MANUAL

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Features

Industry-use LED backlight adopted

LED backlight panel **Page 64**

Commercial grade panel adopting the LED backlight.
With the LED backlight, the monitor has achieved low power consumption and eliminated mercury. The slim monitor design allows installation in more various environments than the conventional monitors.

High-quality LCD panel which provides a wide variety of contents and messages clearly

Full HD panel **Page 64**

The MDT552S panel reproduces images from video and computer signals with precision and clarity, delivering full 1920 x 1080 high-definition resolution.

Enhanced Display Functionality for Various Commercial Use/Support for System Configuration Suitable for Diversified Applications

Tiling Capability with Frame compensation **Page 57**

Up to 25 panels (5 wide x 5 high) can be combined to create a single large image (i.e., video wall) or other high-impact signage. A frame compensation function is incorporated to compensate the width of panel bezels so that images are displayed with the utmost accuracy.

PIP, POP and Side-by-side **Pages 10, 52, and 61**

Picture-In-Picture and Picture-Outside-Picture are available when you want to display video content from a video input source in the sub picture and display the PC input source in the main picture, and vice versa.
The native resolution as high as 1920 x 1080 can display these two input sources in the Side-by-side mode, ideal for broadcasting and video-conferencing applications.

Digital Zoom **Page 50**

Zoom mode for expanding 4:3 image to 16:9.
Various zoom modes are provided and it is possible to expand 4:3 aspect ratio images to 16:9. In addition, you can select the dynamic display mode to display naturally widened images with different zooming rates around the screen center and screen edges. You can also optimally change the image size diagonally, horizontally, and vertically.

Expansion slot allowing installation of expansion modules according to applications

Option Slot **Page 25**

You can mount an expansion module recommended by Mitsubishi on the monitor. With such expansion module, you can expand the functionality of the monitor according to the purpose of use.

SDI Connection (option) **Page 25**

The SDI BOX receives SD-SDI, HD-SDI, and 3G-SDI signals at a maximum speed of 2.970 Gbit/s and displays them on the monitor. A single image is distributed to multiple monitors that are daisy-chained via SDI cables (BNC).

Various Management Functions Supporting Efficient Operation and Management

Programmable Scheduling Function **Pages 40, 41, and 55**

The monitor's operating schedule can be programmed for up to seven different scheduled time intervals by time, day of the week and input port. This allows video content from different inputs to be displayed on certain monitors within the same installation according to the schedule, and extends the monitor's life and saves the power by turning it off during those hours or days it is not in use.

Screen-saver Functions **Page 53**

To reduce image persistence and maximize the panel life in demanding signage applications, this product is equipped with four screen-saver functions.

- GAMMA
- COOLING FAN
- BRIGHTNESS
- MOTION

Power-on Delay **Page 57**

For installations employing numerous monitors, the power-on delay function can power up the monitors sequentially with delay between 2-50 seconds after the power is applied. Using this function can prevent inrush current problems and reduce the overall electrical load requirements when a single power supply is used.

LAN Control **Pages 28, 44, and 54**

You can efficiently and centrally control multiple monitors for reconfiguration and remote diagnosis by sending control commands from a computer via a LAN network. The user can choose to use Mitsubishi protocol to control this monitor, or other popular protocols including Crestron's RoomView^{TM} and AMX's Device Discovery.

Brightness Compensation by the Ambient Light Sensors for Enhanced Visibility and Lower Power Consumption

Ambient Light Sensors (Brightness sensors) **Pages 8 and 60**

Automatic screen brightness adjustment for enhanced visibility and lower power consumption.

The ambient light sensors on the front and rear of the monitor detect not only the light reflected on the front but also from the rear to automatically adjust the image brightness for optimum viewing. The screen is always easy to view in spite of brightness variation during the day or night.

Others

DisplayPort **Pages 9 and 22**

DisplayPort-compliant terminal is provided.
The monitor is equipped with a terminal supporting DisplayPort, a digital interface standard. You can transmit video signals over a single cable of max. 15-meters long.

Built-in Speakers **Pages 8 and 38**

This monitor offers built-in stereo speakers to deliver audio messages. Optional external stereo speakers can also be used. The user have the option to switch between using external or built-in speakers from the menu.

Remote Control **Pages 10 and 11**

A wireless remote control is supplied to control the various functions of this monitor, including power on/off, input select, and menu access.

Closed Caption **Page 57**

You can display captions.
When closed-caption is encoded with the video signal, the user can select to display or hide the caption on screen.
This monitor is compliant with EIA-608-A.

USB hub function **Page 57**

Multiple USB devices can be connected to the computer.
The monitor is equipped with the USB hub having 2 self-powered downstream ports, where the USB devices can be connected. You will find this function convenient when mounting a device such as a digital camera and a touch-panel unit on the monitor.

Super Resolution (image conversion) technique **Page 49**

Still images/natural images and video content are displayed with enhanced clarity based on the super resolution settings. In addition, the monitor is equipped with the resolution recognition function that recognizes the resolution of the input image and automatically applies the effect depending on the recognized resolution.

Daisy Chain Connection (DVI-D) **Page 22**

By connecting the DVI-D OUT connectors and the DVI-D IN connectors using DVI-D cables (commercially available), you can transmit video signals to up to 4 monitors (when using 2-meter cables). This function is useful in supplying a video signal to multiple monitors.

Important Information

Canadian Department of Communications Compliance Statement

DOC: This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

C-UL: Bears the C-UL Mark and is in compliance with Canadian Safety Regulations according to CAN/CSA C22.2 No. 60950-1.

FCC Information

1. Use the attached specified cables with the MDT552S (A2129) color monitor so as not to interfere with radio and television reception.
    (1) Please use the supplied power cord or equivalent to ensure FCC compliance.
    (2) Please use the supplied shielded video signal cable, 15-pin mini D-SUB to 15-pin mini D-SUB.
2. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.
    These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
3. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Windows is a registered trademark of Microsoft Corporation.
HDMI, the HDMI logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
VESA, DisplayPort, and the DisplayPort icon are trademarks or registered trademarks of Video Electronics Standards Association in the United States and other countries.
Intel is a trademark of Intel Corporation in the United States and other countries.
Crestron, Crestron RoomView and RoomView are trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and other countries.
AMX is a trademark or registered trademark of AMX, LLC in the United States and other countries.
All other brands and product names are trademarks or registered trademarks of their respective owners.

Important Information (continued)

WARNING

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO, DO NOT USE THIS UNIT'S POLARIZED PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLETS UNLESS THE PRONGS CAN BE FULLY INSERTED.

REFRAIN FROM OPENING THE CABINET AS THERE ARE HIGH VOLTAGE COMPONENTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, MAKE SURE POWER CORD IS UNPLUGGED FROM WALL SOCKET. TO FULLY DISENGAGE THE POWER TO THE UNIT, PLEASE DISCONNECT THE POWER CORD FROM THE AC OUTLET. DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚡ This symbol warns user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside this unit.

⚠ This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

Declaration

Declaration of the Manufacturer

We hereby certify that the color monitor MDT552S (A2129)
is in compliance with
Council Directive 2006/95/EC:
— EN 60950-1
Council Directive 2004/108/EC:
— EN 55022
— EN 61000-3-2
— EN 61000-3-3
— EN 55024

and marked with

Mitsubishi Electric Corporation
2-7-3, Marunouchi,
Chiyoda-Ku
Tokyo 100-8310, Japan

Warning

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Safety Precautions, Maintenance & Recommended Use

FOR OPTIMUM PERFORMANCE, PLEASE NOTE
THE FOLLOWING WHEN SETTING UP AND USING
THE LCD COLOR MONITOR:

- **DO NOT REMOVE MONITOR BACK COVER.** There are no user serviceable parts inside and opening or removing covers may expose you to dangerous shock hazards or other risks.
  Refer all servicing to qualified service personnel.
- Do not spill any liquids into the cabinet or use your monitor near water.
- Do not insert objects of any kind into the cabinet slots, as they may touch dangerous voltage points, which can be harmful or fatal or may cause electric shock, fire or equipment failure.
- Do not place any heavy objects on the power cord. Damage to the cord may cause shock or fire.
- Do not place this product on a sloping or unstable cart, stand or table, as the monitor may fall, causing serious damage to the monitor.
- When operating the LCD monitor, use the power supply cord provided with the monitor.
  If no power cord is supplied with this equipment, please contact your supplier.
- For all other cases, use a power cord that matches the AC voltage of the power outlet and has been approved by and complies with the safety standard of your particular country.
- Do not place any objects onto the monitor and do not use the monitor outdoors.
- Do not bend power cord.
- Do not use monitor in high temperature, humid, dusty, or oily areas.
- If monitor or glass is broken, do not come in contact with the liquid crystal and handle with care.
- If the LCD monitor is damaged and the liquid crystal leaks out, do not inhale or swallow it.
- Allow adequate ventilation around the monitor, so that heat can properly dissipate. Do not block ventilated openings or place the monitor near a radiator or other heat sources.
  Do not put anything on top of the monitor.
- The power cable connector is the primary means of detaching the system from the power supply. The monitor should be installed close to a power outlet, which is easily accessible.
- Handle with care when transporting. Save packaging for transporting.
- Please clean the holes of back cabinet to reject dirt and dust at least once a year because of set reliability.
- If using the cooling fan continuously, it's recommended to wipe holes a minimum of once a month.
- When installing the remote control batteries;
  - Align the batteries according to the (+) and (-) indications inside the case.
  - Align the (-) indication of the batteries first inside the case.

CAUTION:

Immediately unplug your monitor from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen inside the monitor.
- If the monitor has been exposed to rain or water.
- If the monitor has been dropped or the cabinet damaged.
- If the monitor does not operate normally by following operating instructions.

Recommend Use

CAUTION:

- For optimum performance, allow 20 minutes for warm-up.
- Rest your eyes periodically by focusing on an object at least 5 feet away. Blink often.
- Position the monitor at a 90° angle to windows and other light sources to minimize glare and reflections.
- Clean the LCD monitor surface with a lint-free, non-abrasive cloth. Avoid using any cleaning solution or glass cleaner!
- Adjust the monitor's brightness, contrast, and sharpness controls to enhance readability.
- Avoid displaying fixed patterns on the monitor for long periods of time to avoid image persistence (after image effects).
- Get regular eye checkups.

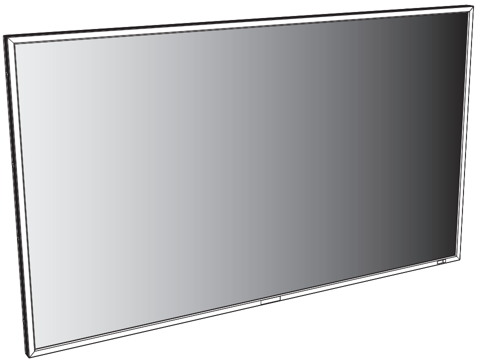
Ergonomics

To realize the maximum ergonomic benefits, we recommend the following:

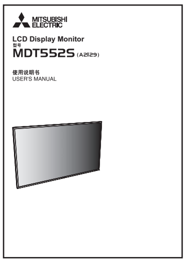
- Use the preset Size and Position controls with standard signals.
- Use the preset Color Setting.
- Use non-interlaced signals.
- Do not use primary color blue on a dark background, as it is difficult to see and may produce eye fatigue due to insufficient contrast.

Contents

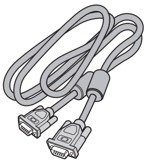
Your LCD monitor (MDT552S) comes with the following:



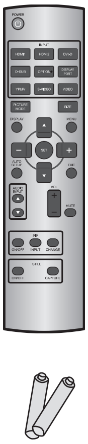
☐ LCD Monitor



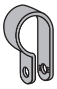
☑ User’s Manual



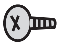
☐ Video Signal Cable
(Mini D-SUB 15-pin to
Mini D-SUB 15-pin Cable)



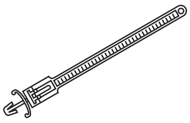
☐ Wireless Remote
Control and AAA
Batteries



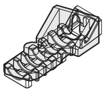
☐ Clamper x 2
(For fall prevention)



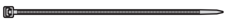
☐ Screw (M4) x 2
(For the monitor fall
prevention clampers)



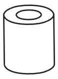
☐ Clamper x 3
(For tying cables)



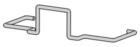
☐ Clamper x 2
(For holding the HDMI cables)



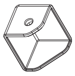
☐ Band x 4
(For the HDMI cable holding
clampers)



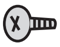
☐ Wall mount spacer x 9



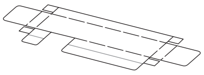
☐ Cable holder
(For holding the power cord)



☐ Corner protector x 4

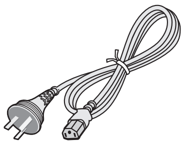


☐ Screw (M3) x 4
(For the corner protectors)

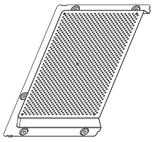


☐ Protective cover

☐ Label to cover the UL
certification marking



☐ Power Cord



☐ Option slot cover

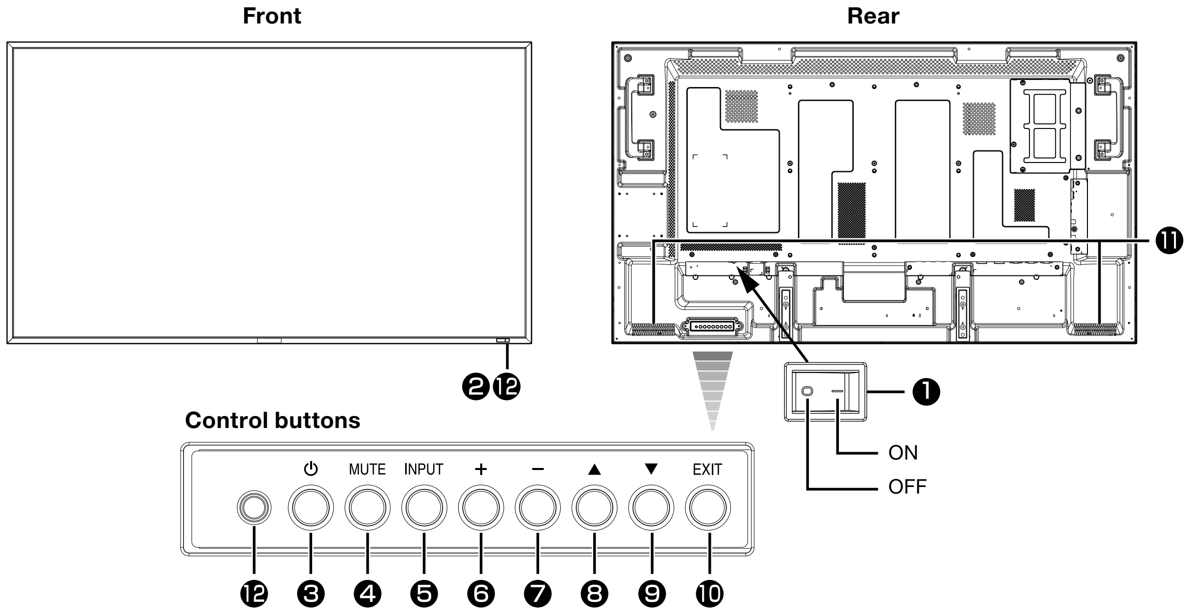
☐ Label to cover the logo
(Use it as necessary.)

The following components are supplied as option.

- External Speakers
- Stands
- SDI BOX

Parts Name and Functions

Buttons, Switch, and Indicator



① Main Power Switch

Switches the main power on/off.

NOTE:

Within 2 seconds after turning off the power by the POWER button on the wireless remote control or the monitor or by a communication command, don't turn off the main power switch, don't disconnect the power cord, and don't turn off the breaker. If the AC power is turned off immediately after the power-off operation, all the OSD settings including the language selection may be reset to the factory defaults at the next power-on.
If the OSD settings are reset to the factory defaults as described above, reconfigure the OSD settings using the following procedure.

1. Turn off the power of the monitor using the wireless remote control or otherwise.
2. Wait for at least 2 seconds.
3. Turn on the power of the monitor using the wireless remote control or otherwise.
4. Check and reconfigure the OSD settings.

② Remote control sensor and Power indicator

Remote control sensor:	Receives the signal from the wireless remote control.
Power indicator:	Indicates the state of the LCD monitor.
• Steady green:	The power is on.
• Steady red:	The power is off. Some operations such as power-on are possible.
• Steady green and red:	The LCD monitor is in the sleep mode.
• Off:	The main power is off.
• Steady red and blinking green:	The LCD monitor is in the schedule standby mode.
• Blinking red:	The LCD monitor has an error (detected by the self-diagnostic function).

③ POWER button (⏻)

Switches the power on/off.
This button doesn't work when the power indicator is off. Turn on the main power. (See page 32.)

④ MUTE button

Switches the audio mute on/off.

⑤ INPUT button

Displays the OSD menu to switch the video input.
You can select [HDMI1], [HDMI2], [DVI-D], [D-SUB], [OPTION]*, [DISPLAYPORT], [YPbPr], [S-VIDEO], or [VIDEO] using the UP (▲) or DOWN (▼) button.

* OPTION can be used when an expansion module is mounted on the option slot.

⑥ PLUS (+) button

Acts as (+) button to increase the adjustment in the OSD menu. Increases the audio output level when the OSD menu is off.

⑦ MINUS (-) button

Acts as (-) button to decrease the adjustment in the OSD menu. Decreases the audio output level when the OSD menu is off.

⑧ UP (▲) button

Acts as ▲ button to move the highlighted area up to select an adjustment item in the OSD menu.

⑨ DOWN (▼) button

Acts as ▼ button to move the highlighted area down to select an adjustment item in the OSD menu.

⑩ EXIT button

Activates the OSD menu when the OSD menu is off.
Acts as EXIT button to go back to the previous OSD menu.

⑪ Speakers

Audio sound is output from the built-in speakers.

⑫ Brightness sensor (on the front and rear)

Sensor for the auto brightness function.

(Reference) Control Lock mode

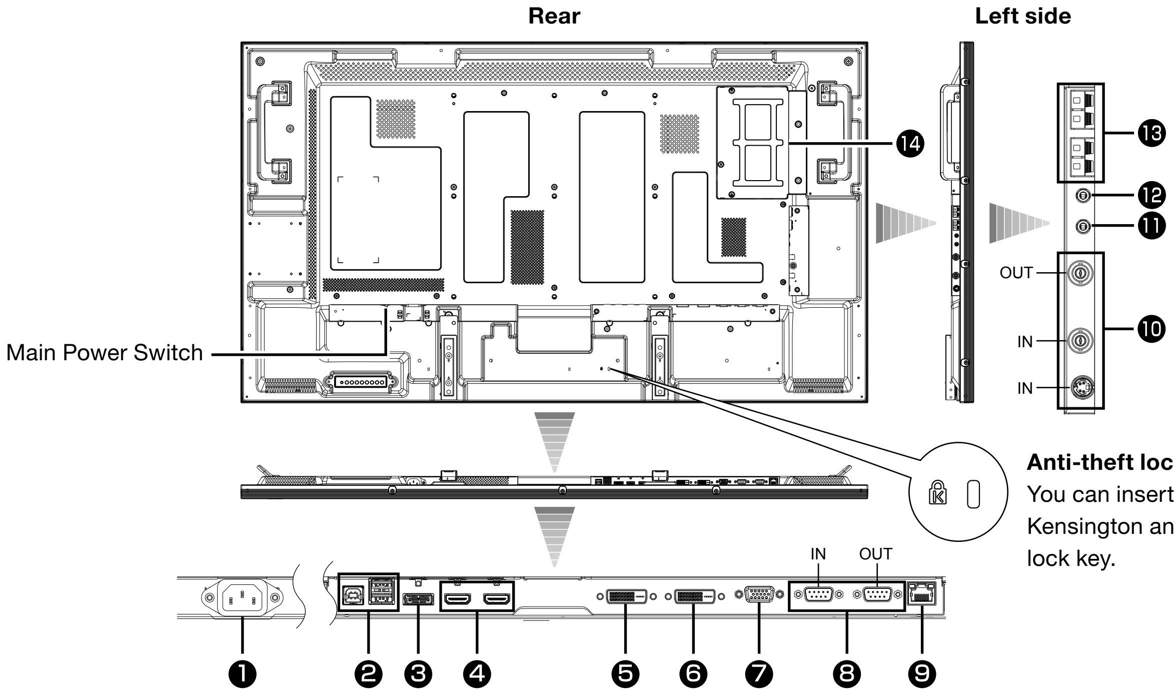
You can lock the operation buttons. See page 58.

NOTE:

For details about the OSD menu operation using the buttons, see "Basic operation of OSD." (See page 47.)

Parts Name and Functions (continued)

Connectors and Terminals



Anti-theft lock slot
You can insert a Kensington anti-theft lock key.

❶ AC IN (3-pin, with earth terminal)

Connects with the supplied power cord.

❷ USB hub

USB upstream port (Standard B): 1
To be connected to an external computer.
USB downstream port (Standard A): 2
To be connected to peripheral devices such as digital camera and touch-panel.

❸ DISPLAYPORT IN

Connects with the digital video output of a computer, etc.

❹ HDMI1 IN, HDMI2 IN

Connects with the digital video output of a computer, DVD player, etc.

❺ DVI-D IN

Connects with the digital video output of a computer, etc.

❻ DVI-D OUT

Outputs the signal that is supplied to the DVI-D IN connector (❺).

❼ D-SUB/YPbPr IN

Connects with the analog video output of a computer or the component video output of a DVD player, etc.

❽ RS-232C connector (D-SUB 9-pin)

IN connector:
Connects with the RS-232C OUT connector of a computer or other connected MDT552S.
OUT connector:
Connects with the RS-232C IN connector of other connected MDT552S.

❾ LAN connector

Connects with a LAN cord.

❿ VIDEO IN/OUT (S connector/BNC)

Connects with video equipment.

S-VIDEO IN:	S-video input connector (MINI DIN 4-pin)
VIDEO IN:	BNC connector
VIDEO OUT:	BNC connector

⓫ AUDIO ANALOG IN

Connects with the audio output connector of external equipment such as a computer, VCR, and DVD player.

⓬ AUDIO ANALOG OUT

Outputs the signal that is supplied to the AUDIO ANALOG IN connector (⓫). Connects with an external audio amplifier, etc.

NOTE:

Headphones and earphones aren’t supported.

⓭ EXTERNAL SPEAKER TERMINAL

Connects with the special stereo speakers (option).

⓮ Option slot

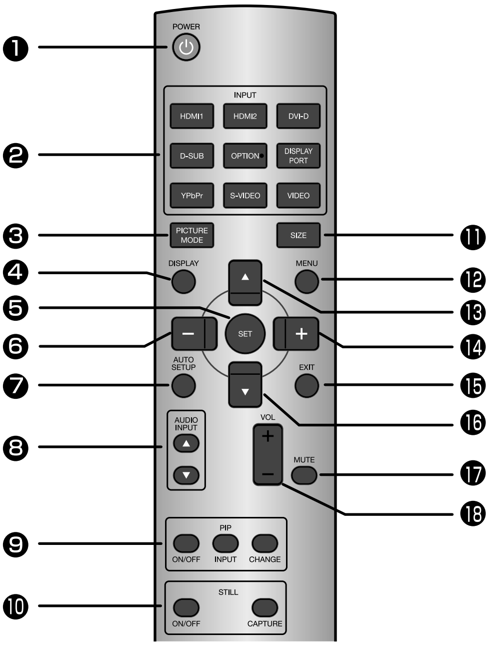
Insert an expansion module (option or commercially available) in this slot.

CAUTION:

Damage to the product may result or monitor may not function properly if an incompatible device is installed in this slot. See page 25.
When mounting an OPS-compliant computer (commercially available), turn on the cooling fan.

Parts Name and Functions (continued)

Wireless Remote Control



❶ POWER button

Switches the power on/off.

* When the Power indicator is not glowing, no controls will work.

❷ INPUT buttons

Select the input signal from [HDMI1], [HDMI2], [DVI-D], [D-SUB], [OPTION]*, [DISPLAYPORT], [YPbPr], [S-VIDEO], and [VIDEO].

* OPTION can be used when an expansion module is mounted on the option slot.

❸ PICTURE MODE button

Selects the picture mode from [HIGHBRIGHT], [STANDARD], [sRGB], and [CINEMA]. See page 37.

HIGHBRIGHT: The brightness is maximized.
STANDARD: Factory default setting.
sRGB: Suitable for color matching with sRGB-compliant devices.
CINEMA: Suitable for viewing movies.

❹ DISPLAY button

Displays the screen information. See page 58. When the remote control mode is LOCK, you can set it back to NORMAL by holding down the DISPLAY button for at least 5 seconds (see page 57).

❺ SET button

Accepts the settings made in the OSD menu.

❻ MINUS button (-)

Acts as (-) button to decrease the adjustment in the OSD menu. When the PIP mode is active, this button moves the sub picture to the left.

❼ AUTO SETUP button

Displays the auto setup menu. See pages 36 and 53.

❽ AUDIO INPUT buttons

Selects the audio input according to the video input.

NOTE:

This button works only while any of HDMI1, HDMI2, OPTION (SDI BOX or OPS-compliant computer), or DISPLAYPORT video input is selected. See page 59.

❾ PIP (Picture-In-Picture) buttons

ON/OFF button: Switches the PIP or POP mode on/off.
INPUT button: Selects video to be displayed in the sub picture.
CHANGE button: Changes the main picture with the sub picture.

[Description]

PIP: Picture-In-Picture
The sub picture is displayed within the main picture.
POP: Picture-Outside-Picture
The sub picture is displayed to the bottom right of the main picture.
SBS: Side-By-Side
The main picture and the sub picture are displayed side by side.

NOTE:

When the screen size is [CUSTOM] or [REAL], the PIP and POP modes don’t work.

❿ STILL button

ON/OFF button: Switches the still picture mode on/off.
CAPTURE button: Captures the new picture.

⓫ SIZE button

Selects the picture size from [FULL], [NORMAL], [CUSTOM], [DYNAMIC], and [REAL]. See page 58.

⓬ MENU button

Switches the OSD menu mode on/off.

⓭ UP button (▲)

Acts as ▲ button to move the highlighted area up to select an adjustment item in the OSD menu. When the PIP mode is active, this button moves the sub picture up.

⓮ PLUS button (+)

Acts as (+) button to increase the adjustment in the OSD menu. When the PIP mode is active, this button moves the sub picture to the right.

⓯ EXIT button

Displays the previous OSD menu.

⓰ DOWN button (▼)

Acts as ▼ button to move the highlighted area down to select an adjustment item in the OSD menu. When the PIP mode is active, this button moves the sub picture down.

⓱ MUTE button

Switches the mute function on/off.

⓲ VOLUME buttons (VOL)

Pressing the plus (+) side increases the audio output level.
Pressing the minus (-) side decreases the audio output level.

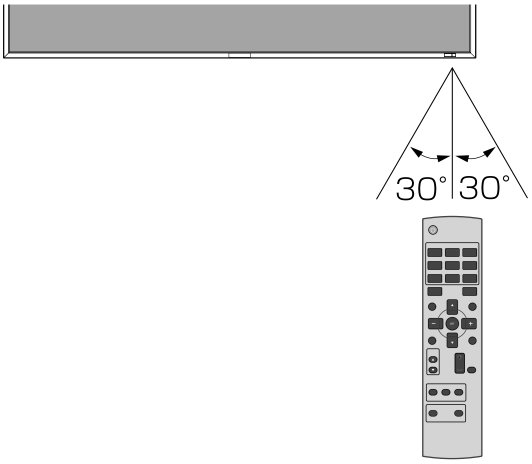
Parts Name and Functions (continued)

How to Use the Wireless Remote Control

Operating Range of the Wireless Remote Control

Point the wireless remote control toward the LCD monitor's remote control sensor during button operation.

Use the wireless remote control within a distance of about 7 m from the front of the LCD monitor's remote control sensor and at a horizontal and vertical angle of within 30° within a distance of about 3.5 m.



CAUTION:

The remote control system may not function when direct sunlight or strong illumination strikes the remote control sensor of the LCD monitor, or when there is an object in the path.

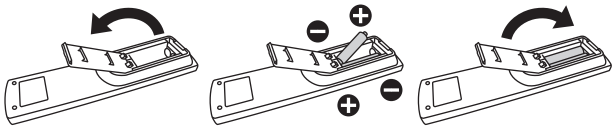
Handling the wireless remote control

- * Do not subject to strong shock.
- * Do not allow water or other liquid to splash on the wireless remote control. If the wireless remote control gets wet, wipe it dry immediately.
- * Avoid exposure to heat and steam.
- * Other than to install the batteries, do not open the wireless remote control.

Installing the wireless remote control batteries

The wireless remote control is powered by 1.5 V AAA batteries.

1. Unlock and pull up the cover in the arrow's direction.
2. Align the batteries according to the (+) and (-) indications inside the case.
3. Replace the cover.



CAUTION:

Incorrect use of batteries can result in leaks or explosion.
Be careful especially about the following points.

- Place "AAA" batteries matching the (+) and (-) signs on each battery to the (+) and (-) signs of battery compartment.
- Do not mix battery types.
- Do not combine new batteries with used ones. It causes shorter battery life or leakage of batteries.
- Remove dead batteries immediately to prevent battery liquid from leaking into the battery compartment. Don't touch exposed battery acid because it causes damage to your skin.

NOTE:

- When the wireless remote control doesn't work at all or it works only within a short distance to the monitor, change both batteries with new ones.
- If you do not use the wireless remote control for a long period, remove the batteries.

Preparation for use

Flow of preparation

P-1 **Preparation for installation** **Page 13**
- Determine the installation location
- Ventilation requirements for enclosure mounting
- To avoid the monitor from falling

Carry out as necessary

P-2 **Installing the monitor** **Pages 14 to 17**
- Installing and removing the stands (The stands are optionally available.)
- Installing in the portrait or face-up position
- Attaching the corner protectors
- Using the monitor without the bezel

Carry out as necessary

P-3 **Installing the optional speakers** **Page 18**

P-4 **Connection procedure** **Pages 19 to 24**
- Wiring diagram
- Prevention of disconnection of HDMI cable
- Connecting with a computer (analog connection)
- Connecting with a computer (digital connection)
- Connecting a video device (component video/HDMI device)
- Connecting a video device (composite video/S video device)/stereo amplifier

Carry out as necessary

P-5 **Installing the expansion module** **Pages 25 to 26**
- Installation of the expansion module
- SDI for long-distance connection or multiple-monitor connection
- Connecting OPS-compliant computer

Carry out as necessary

P-6 **Connecting RS-232C** **Page 27**
- Monitor control via RS-232C

Carry out as necessary

P-7 **Connecting LAN** **Page 28**
- Monitor connection using LAN

Carry out as necessary

P-8 **Connecting a USB device** **Page 29**
- Connecting multiple USB devices using the USB hub function

P-9 **Connecting the power cord to the monitor** **Page 30**
- Connecting the power source

The monitor is ready for use.

How to Use
Page 31

P-1 Preparation for installation

Determine the installation location

CAUTION:
DO NOT ATTEMPT TO INSTALL THE LCD MONITOR BY YOURSELF.
Installing your LCD monitor must be done by a qualified technician. Contact your dealer for more information.

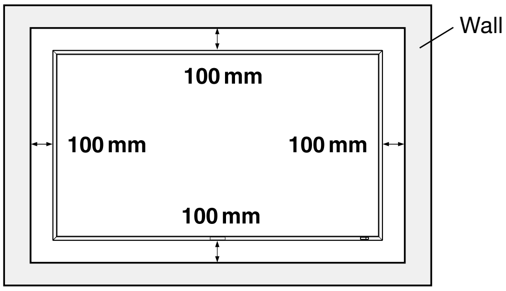
CAUTION:
MOVING OR INSTALLING THE LCD MONITOR MUST BE DONE BY TWO OR MORE PEOPLE.
Failure to follow this warning may result in injury if the LCD monitor falls.

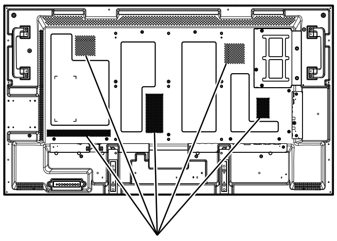
CAUTION:
Proper operation of the monitor is not guaranteed when it is mounted upside down or face down.

IMPORTANT:
Lay the protective sheet, which was wrapped around the LCD monitor when it was packaged, beneath the LCD monitor so as not to scratch the panel.

Ventilation requirements for enclosure mounting

To allow heat to disperse, leave space around the monitor as shown in the figure below.



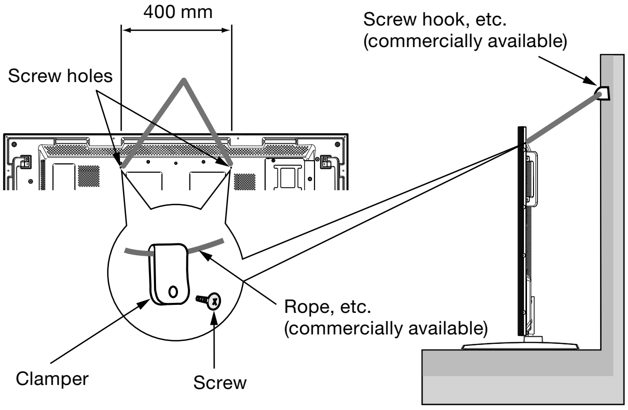


CAUTION:
Don’t block the holes in the rear of the monitor shown in the figure above. If they are blocked, heat accumulates inside the monitor, causing breakdown. The upper limit of the operation-guaranteed ambient temperature when the monitor is installed in the landscape position is 40˚C. When installing the monitor in a case or an enclosure, ensure adequate ventilation to keep the temperature inside the case 40˚C or lower by providing a cooling fan or ventilation holes in the case. The upper limit when the monitor is in the portrait or face-up position is 35˚C.

This LCD has a temperature sensor and cooling fan. If the LCD becomes hot, the cooling fan will turn on automatically. If the LCD becomes overheated, the “Caution” menu will appear.
If the “Caution” menu appears, stop using the monitor and allow it to cool. When the LCD monitor is used in an enclosure or with protection on LCD surface, please check the inside temperature of the monitor by “HEAT STATUS” (See page 57). If the temperature is higher than the normal level, set “COOLING FAN” to ON using the SCREEN SAVER function (See page 53).
When mounting an OPS-compliant computer (commercially available), turn on the cooling fan.

To avoid the monitor from falling

When installing the monitor using the tabletop stands (option), take measures to prevent the monitor from falling over in case of an earthquake or other disaster to lessen the probability of injury and damage resulting from the fall.
As shown in the figure, secure the monitor to a solid wall or pillar using rope (commercially available) strong enough to bear the weight of the monitor. [approximately 30.1 kg (with the optional stands)]
When using screw hooks (commercially available), use ring hooks, not C-hooks (with opening).



CAUTION:

- The effect of the fall prevention substantially depends on the strength of brackets and base to which the fall prevention devices is attached. When you cannot ensure sufficient strength, provide adequate reinforcement.
- Though the recommended fall prevention is intended to lessen the probability of injury and damage, it doesn’t assure its effectiveness against any kind of earthquake or disaster.
- Do not sleep where the monitor may topple over or fall in case of an earthquake or other disaster.
- Before moving the monitor, remove the rope that is securing the monitor. Failure to do so may result in injury or breakdown of the monitor.

P-2 Installing the monitor

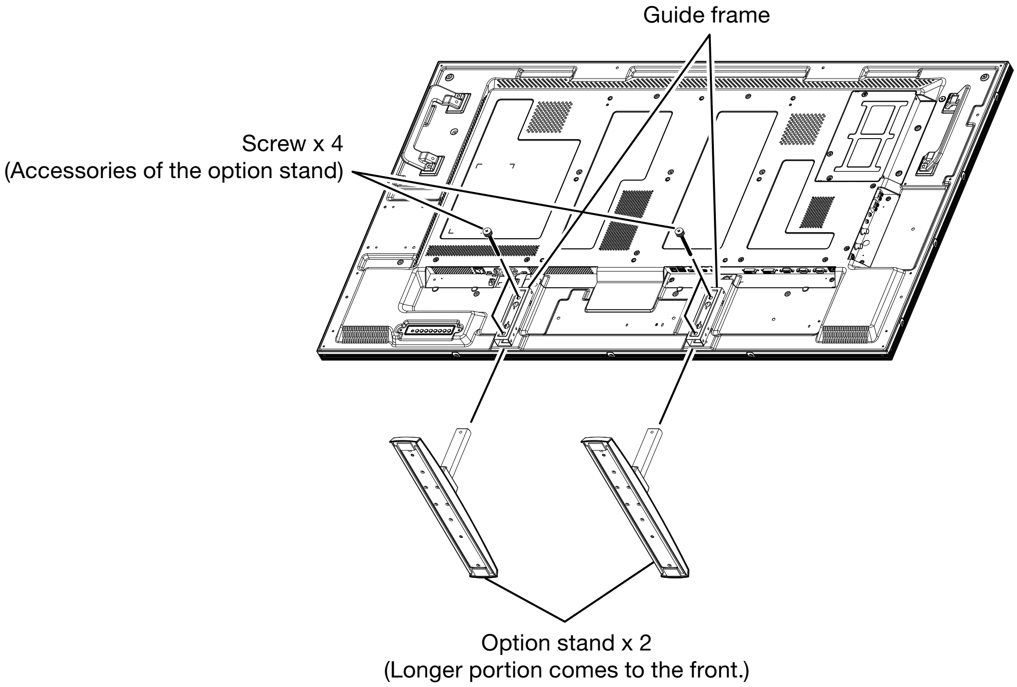
Carry out as necessary

Installing and removing the stands

The stands are available as option.
Refer to the user's manual of the stand for more information.

How to install the stands

1. Turn the monitor off.
2. Insert the option stands in the guide frames on both sides to the end.
   Secure the option stands on both sides firmly using the screws supplied with the option stands.


Guide frame
Screw x 4
(Accessories of the option stand)
Option stand x 2
(Longer portion comes to the front.)

3. Install the monitor on a flat and stable surface.

NOTE:

- Install the stands so that their longer portions come to the front.

How to remove the stands

1. Spread the protective sheet on a flat surface, such as a desk.
2. Place the monitor on the protective sheet.
3. Remove the screws to remove the option stands.

P-2 Installing the monitor (continued)

Carry out as necessary

Installing in the portrait or face-up position

The monitor can be installed in the portrait or face-up position. Ensure that the monitor is oriented as shown below.

CAUTION:

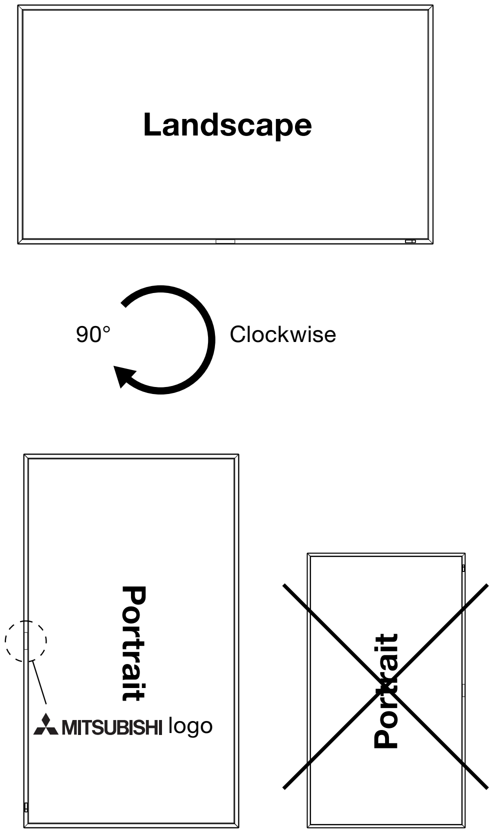
- The operating environmental condition (temperature) when the monitor is in the portrait or face-up position is 0˚C to 35˚C.
- Proper operation of the monitor is not guaranteed when it is not mounted as shown below (upside down, face down, etc.).
- When mounting an OPS-compliant computer (commercially available), be sure to set COOLING FAN to ON using SCREEN SAVER in the CONFIGURATION1 menu of the OSD screen function. If it is set to AUTO, the life of the computer may become shorter than that with it set to ON or the computer may have trouble.
- In the portrait or face-up position, the lifetime of the backlight is shorter than that in the landscape position.
- When the monitor is in the face-up position, be sure to set COOLING FAN to ON using SCREEN SAVER in the CONFIGURATION1 menu of the OSD screen function.

Installation in the portrait position

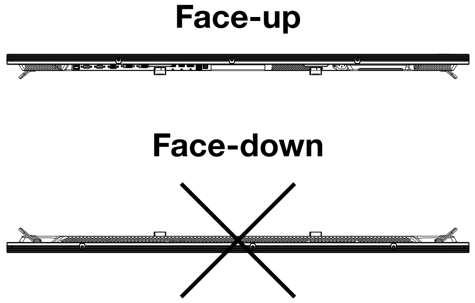
The " MITSUBISHI " logo should be on the LEFT side when viewed from the front of the monitor.

NOTE:

This monitor doesn't have a function to rotate displayed images. To display images in the portrait orientation, use already rotated images.



Installation in the face-up position



Operation environment for portrait or face-up installation

When the monitor is installed in the portrait or face-up position, the following conditions should be satisfied.

Temperature	0 - 35°C / 32 - 95°F
Humidity	20 - 80% (without condensation)

P-2 Installing the monitor (continued)

Carry out as necessary

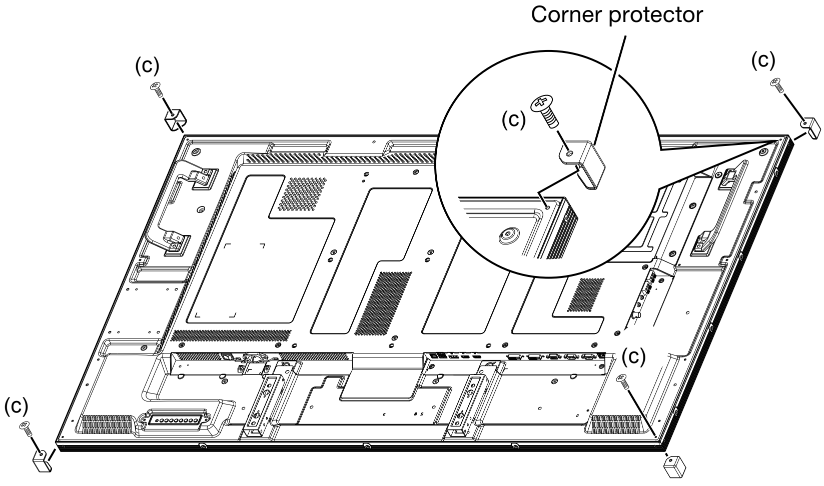
Attaching the corner protectors

CAUTION:

It is recommended to use the corner protectors (accessories).

When installing the monitor, hold its body firmly. If you hold the monitor by the corner protectors when moving it, the monitor may detaches and fall from the corner protectors, causing injuries.

1. Attach the corner protectors using the accessory screws (c).



(c): Screw for attaching the corner protector (M3, 4 pcs.)

P-2 Installing the monitor (continued)

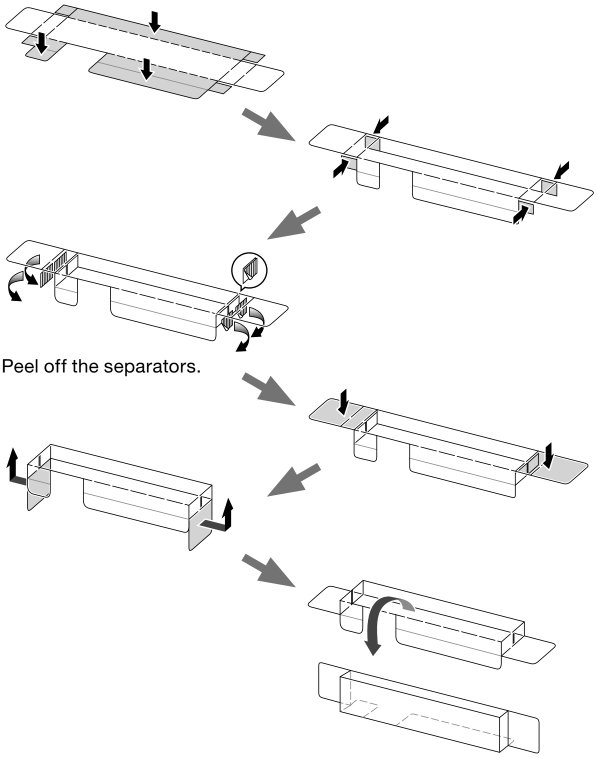
Carry out as necessary

Using the monitor without the bezel

CAUTION:

- MDT552S satisfies the UL requirements as long as it is used with the bezel attached. When using the monitor without the bezel, in which case the monitor doesn't satisfy the UL requirements, cover the UL certification marking on the rear panel with the supplied label.
- To prevent static damage to circuit boards, attach the protective cover to the LCD panel.

1. Assemble the supplied protective cover according to the following procedure.

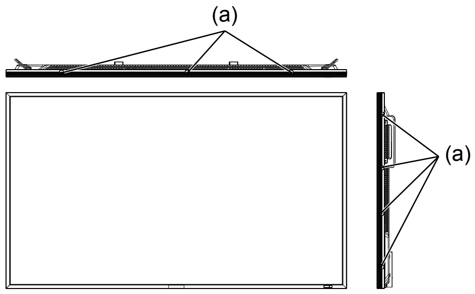


Peel off the separators.

2. Unscrew the screws (a) that hold the bezel to remove the bezel from the monitor.

   CAUTION:

   If you remove other screws than the screws (a), the bezel falls apart. If you do so, the bezel may fall, causing injury or damaging the monitor.

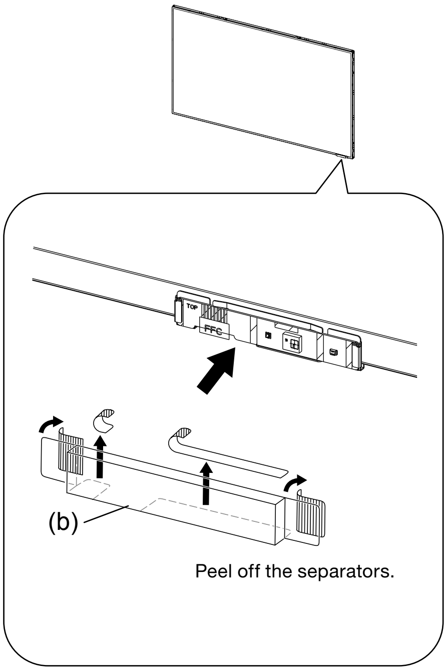


(a): Screws for securing the bezel (M3, 14 pcs.)

3. Peel off the separators from the protective cover (b) assembled in step 1 and then attach the protective cover to the LCD panel.

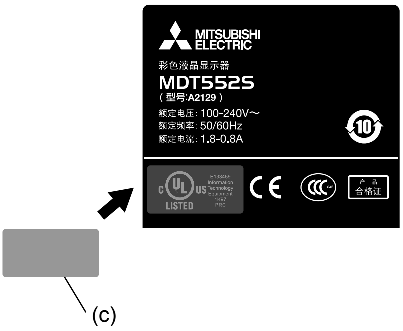
   CAUTION:

   Never touch the circuit boards because they may be damaged.



Peel off the separators.

4. Cover the UL certification marking on the rear panel with the supplied label (c).



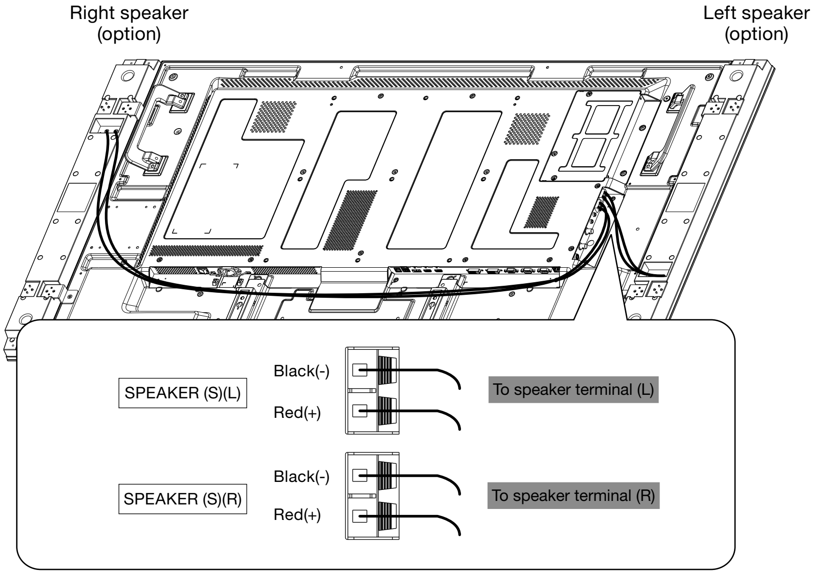
P-3 Installing the optional speakers Carry out as necessary

How to install the optional speakers

1. Install the optional speakers on the monitor.
   Use the metal fittings and screws supplied with the optional speakers.
   Please refer to Quick Setup Guide of the optional speakers for the detailed installation procedure.
2. Insert the left speaker cable into the SPEAKER (S)(L) on the monitor, and insert the right speaker cable into the SPEAKER (S)(R).

   NOTE:

   Match the polarity of the speaker cables and that of the terminals (+ (red)/- (black)).
   Unmatched polarity may cause problems with audio output.


Right speaker
(option)
Left speaker
(option)
SPEAKER (S)(L)
Black(-)
Red(+)
To speaker terminal (L)
SPEAKER (S)(R)
Black(-)
Red(+)
To speaker terminal (R)

NOTE:

Switch the built-in speaker mode to the optional speaker mode after you power on the monitor.
See the page for How to Use (on page 31) for further details.

CAUTION:

Don’t hold the speakers when moving the monitor.
The monitor and the speakers may be damaged and you may be injured if the monitor falls.

P-4 Connection procedure

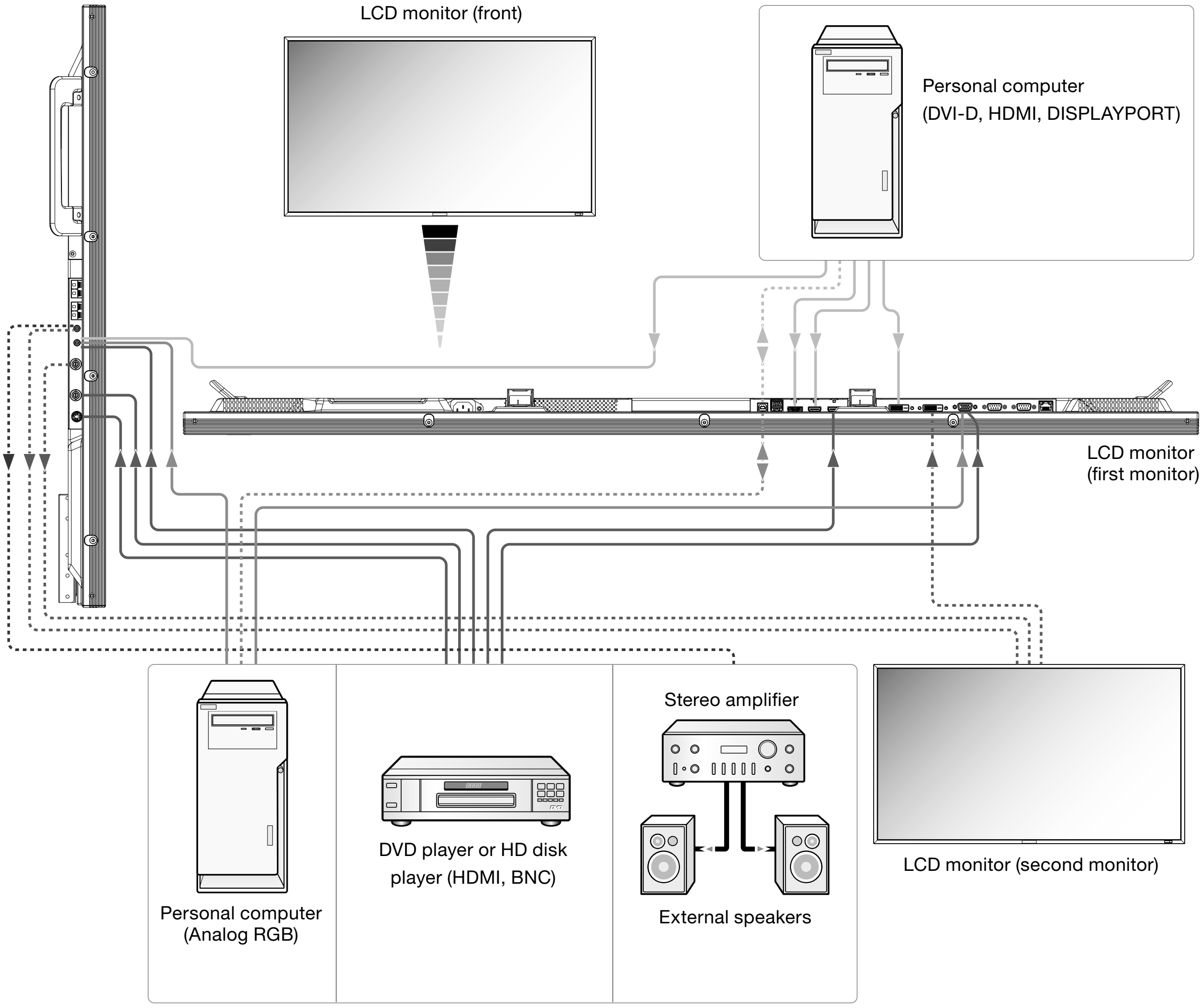
Before making connections

- First turn off the power of all the connected equipment before making connections.
- Refer to the user manual of each piece of equipment.

NOTE:

Please use the audio cable without resistance when the audio output terminal of the audio device and PC is stereo mini-Jack. When the audio cable with resistance is used, the audio level may be affected or no sound could be heard.

Wiring diagram


LCD monitor (front)
Personal computer
(DVI-D, HDMI, DISPLAYPORT)
LCD monitor
(first monitor)
Stereo amplifier
Personal computer
(Analog RGB)
DVD player or HD disk
player (HDMI, BNC)
External speakers
LCD monitor (second monitor)

P-4 Connection procedure (continued)

Prevention of disconnection of HDMI cable

For connecting an HDMI cable to the connector on the monitor, it is recommended to secure the cable using an accessory clamper to prevent accidental disconnection.

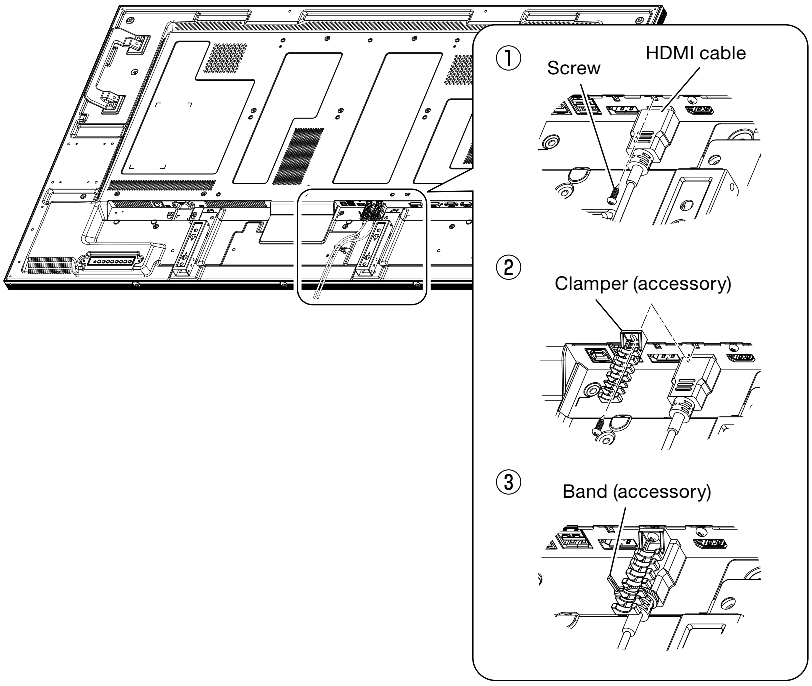
1. Connect an HDMI cable to the connector on the monitor.
2. Secure the HDMI cable using a clamper (accessory) and a band (accessory).

   ① Remove the screw from the monitor.

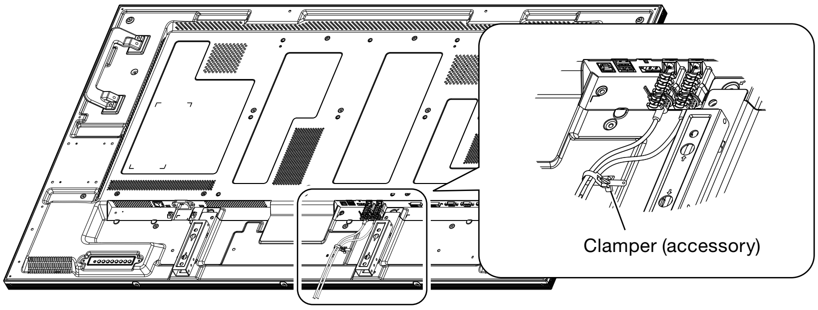
   ② Attach the clamper to the monitor using the screw you have removed in step ①.

   ③ Secure the HDMI cable and the clamper using the band.

   NOTE:
   The band isn't reusable. The monitor comes with 2 spare bands.
   To replace the band, cut and remove the existing band and attach a new one of the same shape (commercially available, 2.5 mm in width and approximately 100 mm in length).



3. Secure the HDMI cable using a clamper (accessory).



P-4 Connection procedure (continued)

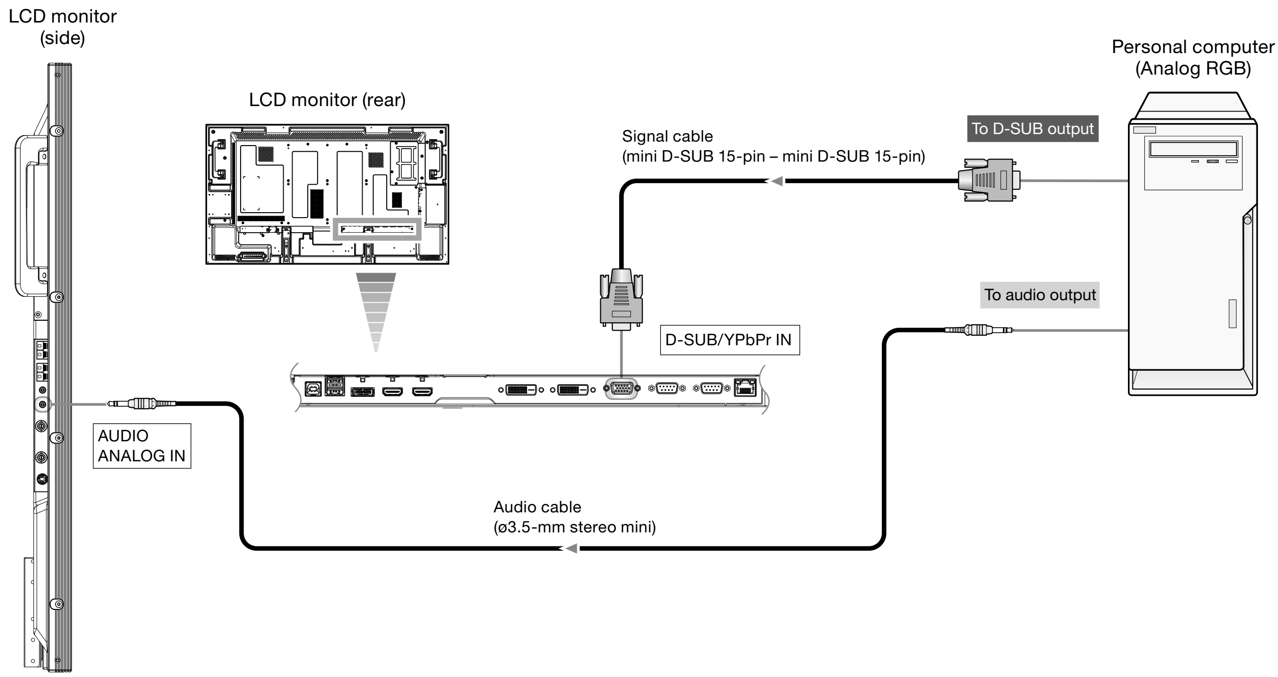
Connecting with a computer (analog connection)

Analog connection:

(1) Connect a signal cable (mini D-SUB 15-pin – mini D-SUB 15-pin) (accessory) to the D-SUB/YPbPr IN connector.
(2) Select [D-SUB] using the INPUT button on the monitor or the D-SUB button on the wireless remote control. At the moment of the selection, the audio is automatically switched to [ANALOG].

Audio connection:

- Connect an audio cable (ø3.5-mm stereo mini) (commercially available) to the AUDIO ANALOG IN connector.
  Because the audio is automatically switched to [ANALOG] when [D-SUB] is selected, the audio is output just by connecting the cable.


LCD monitor
(side)
LCD monitor (rear)
Personal computer
(Analog RGB)
Signal cable
(mini D-SUB 15-pin – mini D-SUB 15-pin)
To D-SUB output
To audio output
D-SUB/YPbPr IN
AUDIO
ANALOG IN
Audio cable
(ø3.5-mm stereo mini)

The monitor automatically distinguishes the timings shown in the table below and sets the screen information. When a PC or other device is connected, it automatically displays images properly. See the page describing AUTO SETUP/AUTO ADJUST.

<Factory preset timing>

	Resolution	Frequency		Remarks		Resolution	Frequency		Remarks
		Horizontal	Vertical				Horizontal	Vertical	
1	640 x 480	31.5 kHz	60 Hz		9	1280 x 1024	64.0 kHz	60 Hz	
2	800 x 600	37.9 kHz	60 Hz		10	1400 x 1050	65.3 kHz	60 Hz	
3	1024 x 768	48.4 kHz	60 Hz		11	1680 x 1050	64.7 kHz	60 Hz	
4	1280 x 720	45.0 kHz	60 Hz		12	1600 x 1200	75.0 kHz	60 Hz	
5	1280 x 768	47.8 kHz	60 Hz		13	1920 x 1080	56.2 kHz	50 Hz	
6	1280 x 800	49.7 kHz	60 Hz		14	1920 x 1080	67.5 kHz	60 Hz	Recommend timing
7	1360 x 768	47.7 kHz	60 Hz		15	1920 x 1200	74.0 kHz	60 Hz	CVT Reduced Blanking
8	1440 x 900	55.9 kHz	60 Hz						

NOTE:

When a signal other than 1920 x 1080 is input, characters may be blurred and figures and objects may be distorted.
Images may not be displayed correctly depending on the video card or driver being used.

Connecting with a computer (digital connection)

Digital connection:

- **Connection via the HDMI IN connector**
  1. Connect an HDMI cable (commercially available) to the HDMI1 IN or HDMI2 IN connector.
  2. Select [HDMI1] or [HDMI2] according to the connected connector by pressing the INPUT button on the monitor or the HDMI1 or HDMI2 button on the wireless remote control.
- **Connection via the DVI-D IN connector**
  1. Connect a DVI-D cable (commercially available) to the DVI-D IN connector.
  2. Select [DVI-D] using the INPUT button on the monitor or the DVI-D button on the wireless remote control.
- **Connection via the DISPLAYPORT IN connector**
  1. Connect a DisplayPort cable (commercially available) to the DISPLAYPORT IN connector.
  2. Select [DISPLAYPORT] using the INPUT button on the monitor or the DISPLAYPORT button on the wireless remote control.

Second monitor connection:

- Connect the DVI-D OUT connector on the first monitor and the DVI-D IN connector on the second monitor using a DVI-D cable (commercially available).

NOTE:

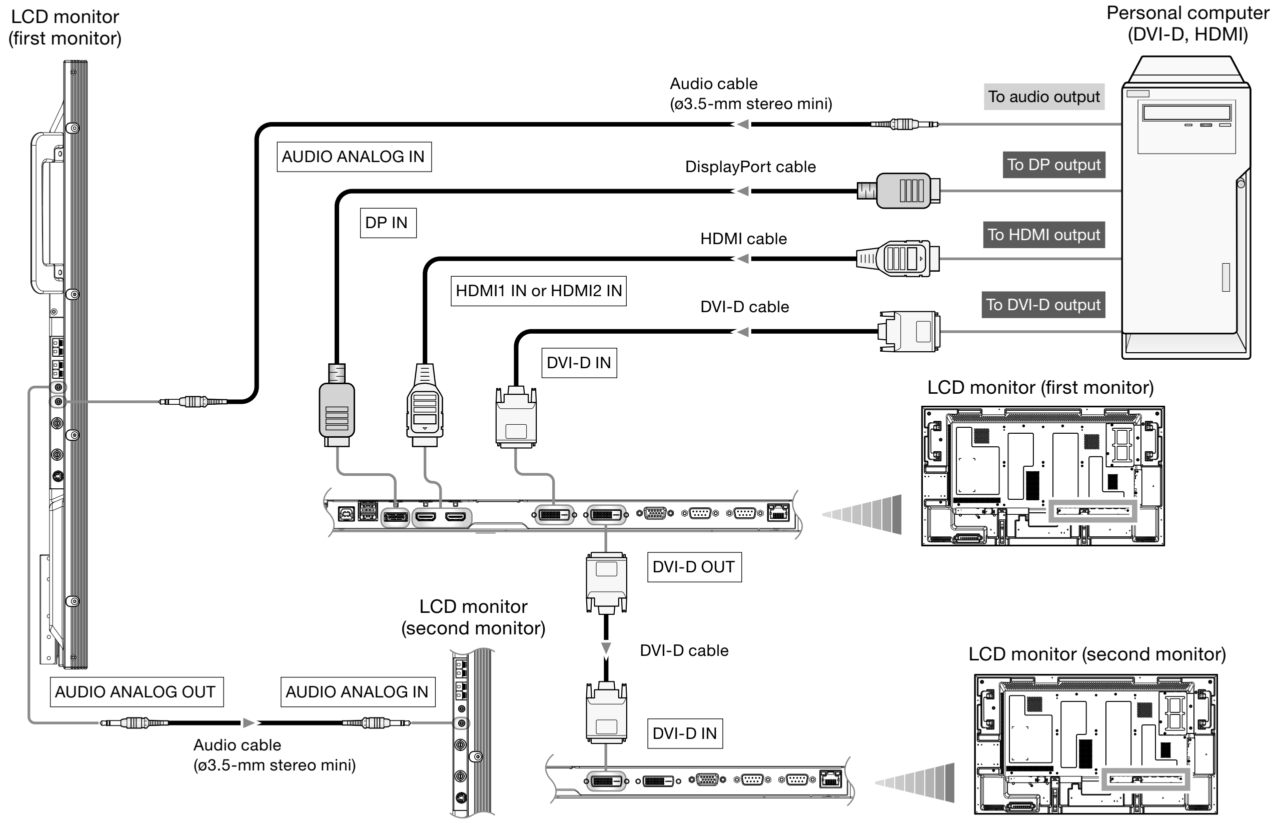
- In the daisy chain connection, you can connect up to 4 monitors (when using 2-meter cables). However, the maximum number of connectable monitors may be limited. It is recommended to check the number of connectable monitors in advance in your installation environment.
- Set RGB of POWER SAVE in the CONFIGURATION1 menu to OFF when using DVI-D in the daisy chain mode.

Audio connection:

- Connect an audio cable (ø3.5-mm stereo mini) (commercially available) to the AUDIO ANALOG IN connector.
  When connecting an HDMI cable, select [HDMI1] or [HDMI2] according to the connected connector by pressing the INPUT button on the monitor or the HDMI1 or HDMI2 button on the wireless remote control. Note that you can select HDMI1, HDMI2, or ANALOG audio at this time. (You can select HDMI audio only when the video input is [HDMI1] or [HDMI2]. The audio of only the selected input is output and HDMI is displayed.)
  When connecting a DVI-D cable, select [DVI-D] using the INPUT button on the monitor or the DVI-D button on the wireless remote control. At the moment of the selection, the audio is automatically switched to [ANALOG].
  When connecting a DisplayPort cable, select [DISPLAYPORT] using the INPUT button on the monitor or the DISPLAYPORT button on the wireless remote control. Note that you can select DISPLAYPORT or ANALOG audio at this time.
- To output the audio to the second monitor, connect the AUDIO ANALOG OUT connector on the first monitor and the AUDIO ANALOG IN connector on the second monitor using an audio cable (ø3.5-mm stereo mini) (commercially available).
  Even when HDMI or DISPLAYPORT is selected on the first monitor, the selected audio is output from the AUDIO ANALOG OUT connector.

NOTE:

- For switching the audio input when an HDMI cable or a DisplayPort cable is connected, see “Audio input change.”

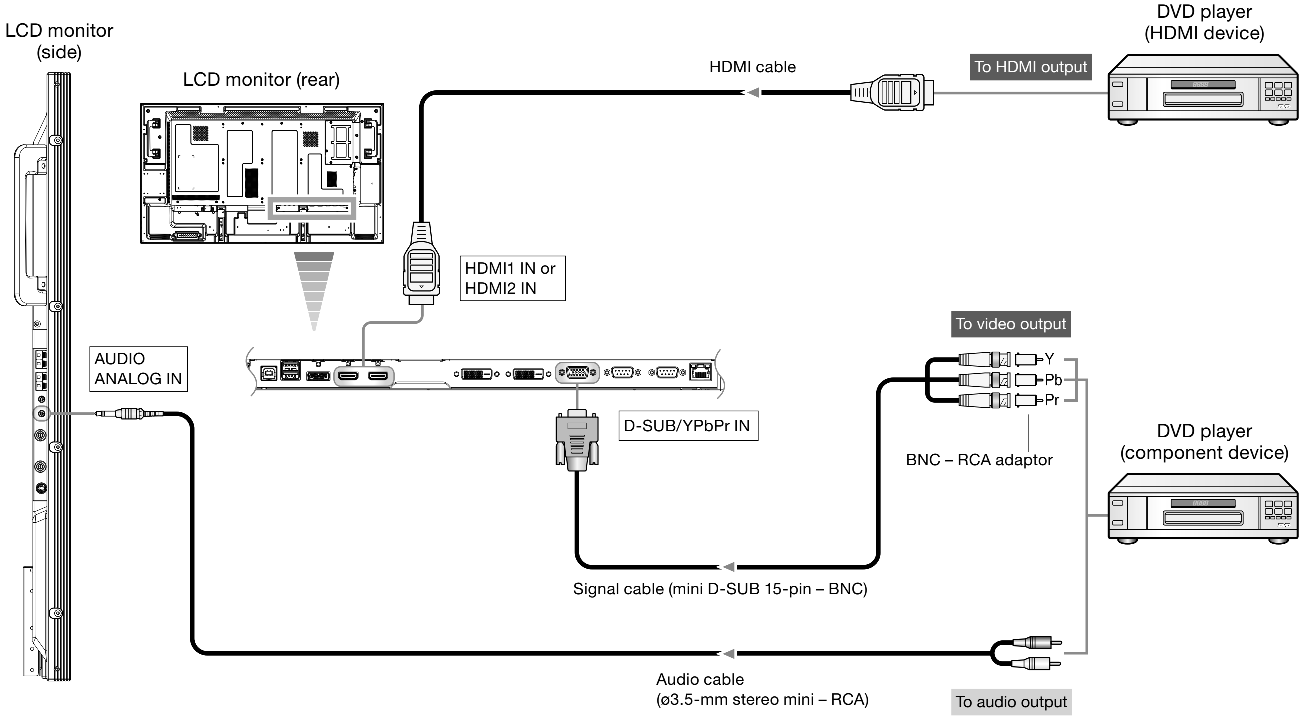

LCD monitor
(first monitor)
Personal computer
(DVI-D, HDMI)
Audio cable
(ø3.5-mm stereo mini)
To audio output
AUDIO ANALOG IN
DisplayPort cable
To DP output
DP IN
HDMI cable
To HDMI output
HDMI1 IN or HDMI2 IN
DVI-D cable
To DVI-D output
DVI-D IN
LCD monitor (first monitor)
DVI-D OUT
LCD monitor
(second monitor)
DVI-D cable
LCD monitor (second monitor)
AUDIO ANALOG OUT
AUDIO ANALOG IN
DVI-D IN
Audio cable
(ø3.5-mm stereo mini)

P-4 Connection procedure (continued)

Connecting a video device (component video/HDMI device)

This monitor can be connected to a video device equipped with component output such as a DVD player.
Refer to the user's manual of the connected device for details. (Cables shown in the figure below are commercially available.)

- To connect a DVD player equipped with component output to the D-SUB/YPbPr IN connector on the monitor, use a signal cable (mini D-SUB 15-pin – BNC) and a BNC – RCA adaptor (commercially available).
  Select [YPbPr] using the INPUT button on the monitor or the YPbPr button on the wireless remote control. At the moment of the selection, the audio is automatically switched to [ANALOG].
- To make audio connection, connect an audio cable (ø3.5-mm stereo mini – RCA) to the AUDIO ANALOG IN connector.
  Because the audio is automatically switched to [ANALOG] when [YPbPr] is selected, the audio is output just by connecting the cable.
- To connect a DVD player equipped with HDMI output to the HDMI1 IN or HDMI2 IN connector on the monitor, use an HDMI cable.
  Select [HDMI1] or [HDMI2] according to the connected connector by pressing the INPUT button on the monitor or the HDMI1 or HDMI2 button on the wireless remote control.
- When connecting an HDMI cable, you can select HDMI1, HDMI2, or ANALOG audio.
  (You can select HDMI audio only when the video input is [HDMI1] or [HDMI2].)


LCD monitor
(side)
LCD monitor (rear)
HDMI cable
To HDMI output
DVD player
(HDMI device)
HDMI1 IN or
HDMI2 IN
AUDIO
ANALOG IN
To video output
Y
Pb
Pr
D-SUB/YPbPr IN
BNC – RCA adaptor
DVD player
(component device)
Signal cable (mini D-SUB 15-pin – BNC)
Audio cable
(ø3.5-mm stereo mini – RCA)
To audio output

P-4 Connection procedure (continued)

Connecting a video device (composite video/S video device)/stereo amplifier

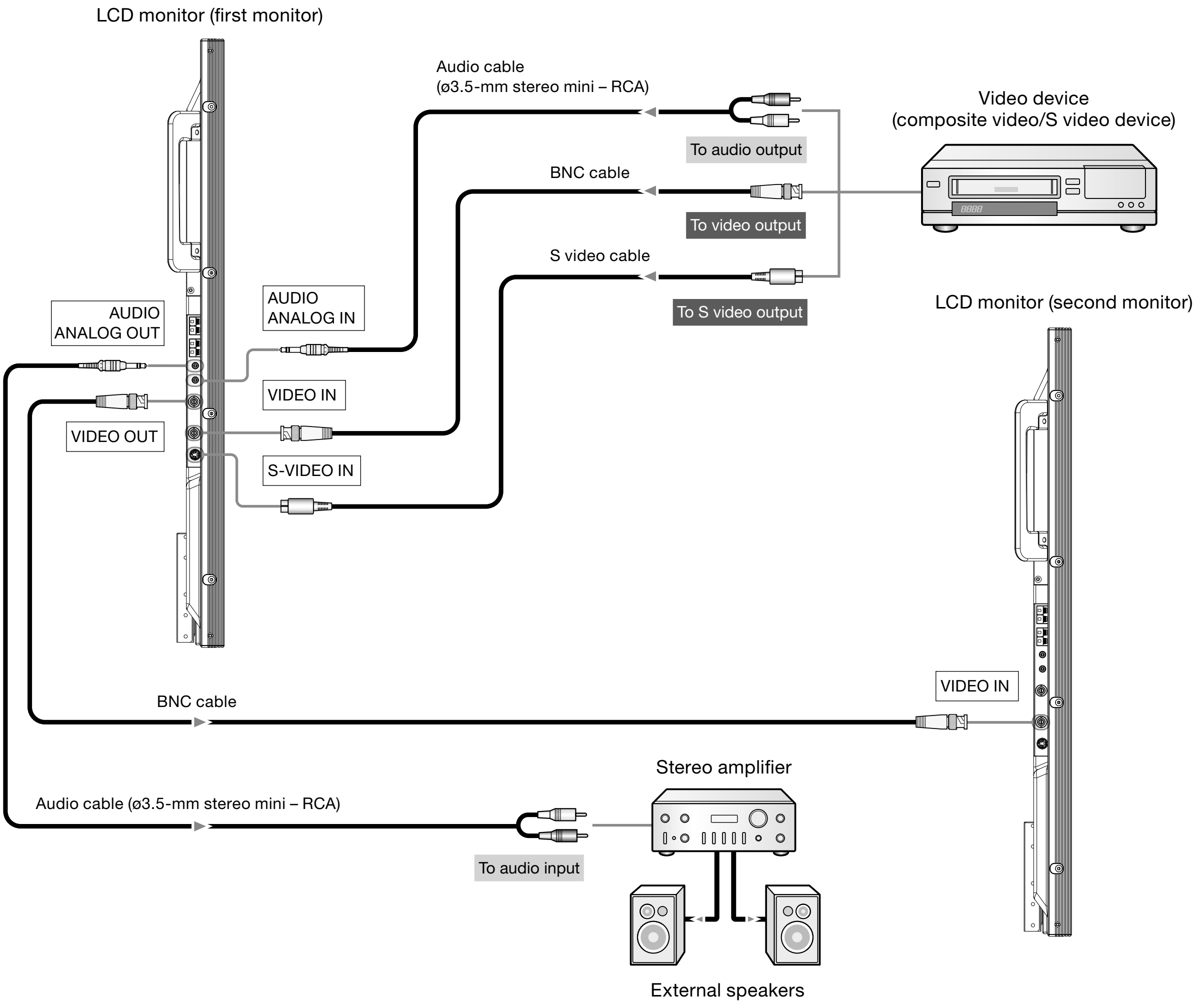
This monitor can be connected to a composite video or S video device or a stereo amplifier.
Refer to the user's manual of the composite video or S video device or the stereo amplifier for details. (Cables shown in the figure below are commercially available.)

- To connect a video device to the VIDEO IN connector (VIDEO IN or S-VIDEO IN) on the monitor, use a BNC cable or an S video cable. For connection to the audio input connector on the monitor, use an audio cable (ø3.5-mm stereo mini – RCA). Connect the connectors of the audio cable (RCA) correctly. For connection to the VIDEO IN connector, select [VIDEO] using the INPUT button on the monitor or the VIDEO button on the wireless remote control. For connection to the S-VIDEO IN connector, select [S-VIDEO] using the INPUT button on the monitor or the S-VIDEO button on the wireless remote control.
- To connect two monitors, connect one end of a BNC cable to the VIDEO OUT connector of the first monitor and the other end to the VIDEO IN connector of the second monitor.

NOTE:

- In the daisy chain connection, you can connect up to 5 monitors (when using 5-meter cables). However, the maximum number of connectable monitors may be limited depending on the connected devices to be used. It is recommended to check the number of connectable monitors in advance in your installation environment.
- When an analog signal is transmitted through the daisy chain, the picture quality such as brightness and sharpness degrades at the latter devices in the daisy chain connection.
- When different monitors need to be adjusted so that their tint can be identical, such as when using multiple screens, it is recommended to use a signal distributor (commercially available).

- When connecting a stereo amplifier to the monitor, be sure to turn off the power of the stereo amplifier. For connection to the AUDIO ANALOG OUT connector on the monitor, use an audio cable (ø3.5-mm stereo mini – RCA). Connect the connectors of the audio cable (RCA) correctly. Be sure to turn on the monitor first, and then turn on the stereo amplifier.
- The selected audio input signal is output from the AUDIO ANALOG OUT connector.


LCD monitor (first monitor)
Audio cable
(ø3.5-mm stereo mini – RCA)
Video device
(composite video/S video device)
To audio output
BNC cable
To video output
S video cable
To S video output
LCD monitor (second monitor)
AUDIO
ANALOG OUT
AUDIO
ANALOG IN
VIDEO IN
VIDEO OUT
S-VIDEO IN
VIDEO IN
BNC cable
Stereo amplifier
Audio cable (ø3.5-mm stereo mini – RCA)
To audio input
External speakers

P-5 Installing the expansion module Carry out as necessary

Installation of the expansion module

Install the expansion module to the option slot of this monitor following the precautions and procedures described in the manual supplied with the module.

Examples of supported expansion modules:
- SDI BOX (DP-1SDI-3G)
- OPS-compliant computer (commercially available)
  Recommended computer (commercially available):
  ARK-DS220F-MTSA1E of Advantech Co., Ltd.

NOTE:
- Please contact module manufacturer for any compatibility issues.

[Description]
Intel ® OPS (Open Pluggable Specification) is a standard suggested by Intel Corporation regarding the interface between the pluggable module mounted on monitors designed for digital signage applications and the monitors.

Supported OPS features:
- DVI-D
- UART
- Digital audio
- DDC
- Power control
- USB
- Analog audio

NOTE:
When an expansion module is in the option slot, the monitor doesn't enter the sleep mode even when POWER SAVE in the CONFIGURATION1 menu is set to ON. Even when other video input is selected, the monitor doesn't enter the sleep mode. See pages 33 and 53.

SDI for long-distance connection or multiple-monitor connection

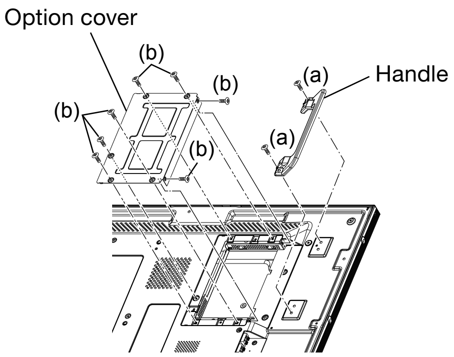
1. Mounting the SDI BOX on the monitor

1. Turn off the main power switch of the monitor and disconnect the power cord.

   CAUTION:
   Be sure to disconnect the power cord to prevent breakdown and electric shock.

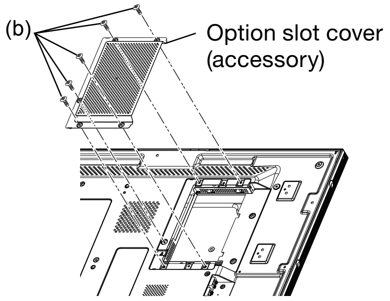
2. Unscrew 2 screws (a) and remove the handle.

   Unscrew 7 screws (b) and remove the option cover.



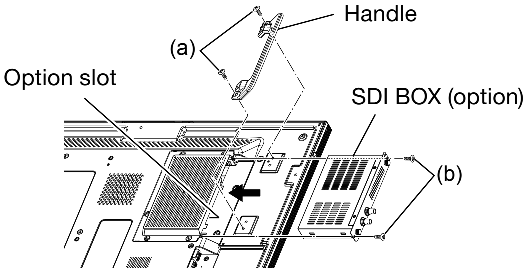
NOTE:
Retain the option cover you have removed because it is replaced when the SDI BOX isn't mounted.

3. Install the option slot cover (accessory) using the 5 screws (b) that you have removed in step 2.



4. Insert the SDI BOX (option) in the option slot and secure it on the monitor using the 2 screws (b) that you have removed in step 2.

   Attach the handle using the 2 screws (a) that you have removed in step 2.



CAUTION:
After installing the option slot cover, ensure that the SDI BOX is positioned and oriented properly and then insert it fully into the slot. The device may be damaged if installed in an incorrect position and orientation.

2. Connection with SDI

There are two cases of connection.

1) Connection to one monitor
1. Connect the video device and the SDI BOX (option) using an SDI cable (BNC) (commercially available).

NOTE:
A high-spec BNC cable capable of carrying SDI signal is called SDI cable and distinguished from other BNC cables.

2) Connection to multiple monitors
1. After the connection made in 2-1) above, connect the SDI OUT connector on the first SDI BOX and the SDI IN connector on the second SDI BOX using a commercially available SDI cable (BNC).

   NOTE:
   The usable cable length (when SDI BOX (DP-1SDI-3G) is mounted) is as follows:
   - When one SDI BOX is connected: 100 m (3G-SDI)*
     * Based on the result of the actual measurement using the recommended cable. (Recommended cable: 1694A made by Belden)

NOTE:
For the connection method and specifications of the SDI BOX, see the catalog or operation manual of the SDI BOX.

P-5 Installing the expansion module (continued) Carry out as necessary

Removal of the SDI BOX

Hold the handle on the SDI BOX for removal.

CAUTION:

Use the handle to extract the SDI BOX only. Pulling on the SDI cable (BNC) or by other means may cause damage.

Connecting OPS-compliant computer

Operation of all types of OPS-compliant computers isn't guaranteed.

Recommended computer (commercially available):
ARK-DS220F-MTSA1E of Advantech Co., Ltd.

NOTE:

When an OPS-compliant computer (commercially available) is mounted, set "COOLING FAN" to ON using the SCREEN SAVER function. See page 53.

1. Mounting the OPS-compliant computer on the monitor

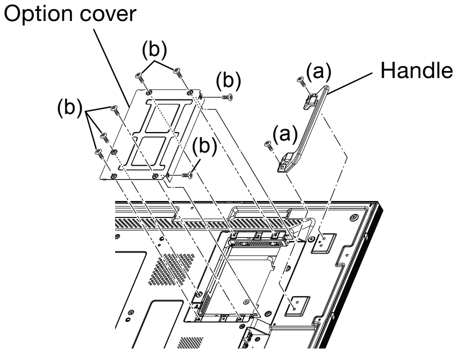
1. Turn off the main power switch of the monitor and disconnect the power cord.

   CAUTION:

   Be sure to disconnect the power cord to prevent breakdown and electric shock.

2. Unscrew 2 screws (a) and remove the handle.

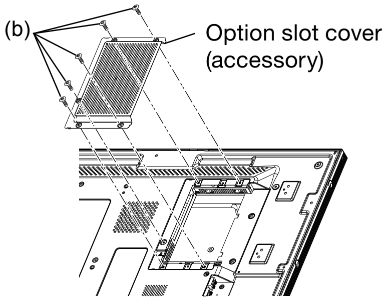
   Unscrew 7 screws (b) and remove the option cover.



   NOTE:

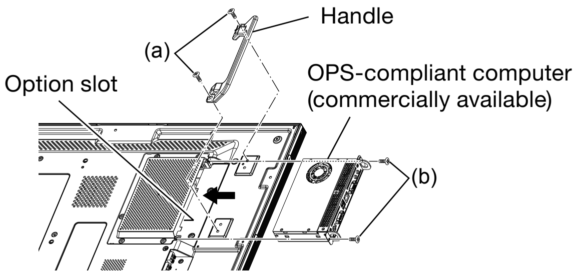
   Retain the option cover you have removed because it is replaced when the OPS-compliant computer isn't mounted.

3. Install the option slot cover (accessory) using the 5 screws (b) that you have removed in step 2.



4. Insert an OPS-compliant computer (commercially available) in the option slot and secure it on the monitor using the 2 screws (b) that you have removed in step 2.

   Attach the handle using the 2 screws (a) that you have removed in step 2.



   CAUTION:

   After installing the option slot cover, ensure that the OPS-compliant computer is positioned and oriented properly and then insert it fully into the slot. The device may be damaged if installed in an incorrect position and orientation.

Removal of the OPS-compliant computer

Hold the handle on the OPS-compliant computer for removal.

CAUTION:

Extract the OPS-compliant computer by using the handle only. Pulling on the cable or other means may cause damage.

P-6 Connecting RS-232C

Carry out as necessary

Monitor control via RS-232C

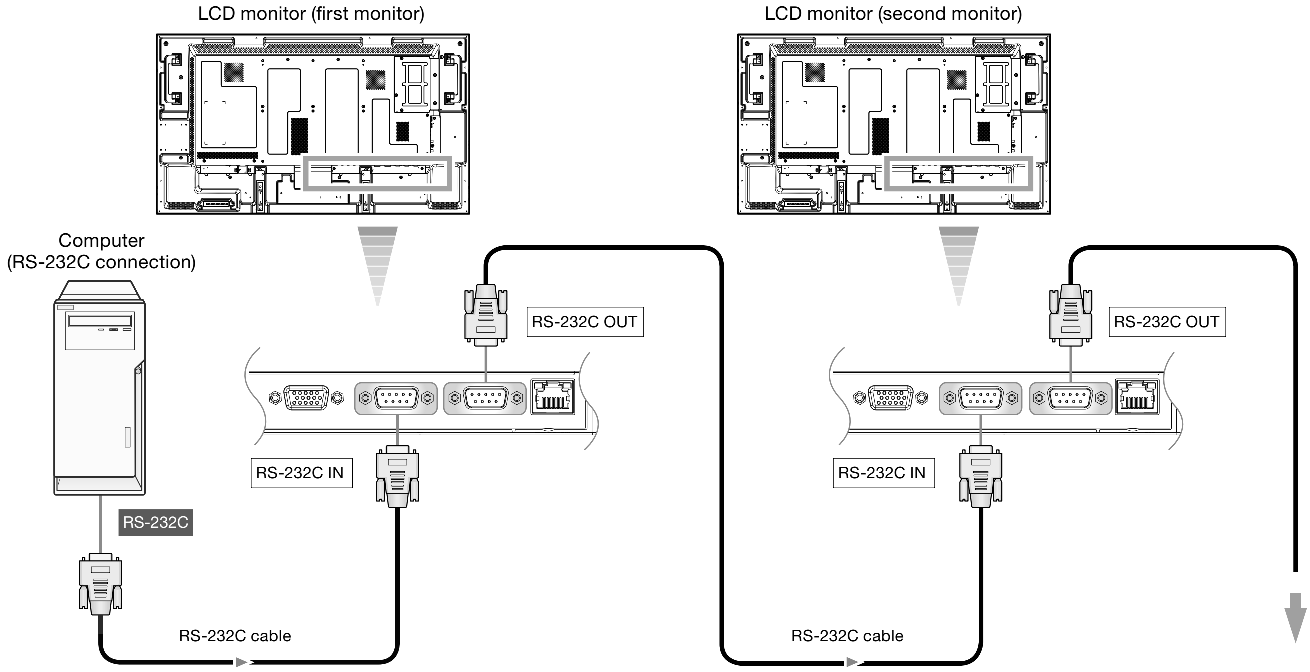
To control this monitor from a computer via a communication, connect this monitor and the computer using an RS-232C cable (commercially available).

How to connect

- Turn off the main power switch of the computer and this monitor. If you make a connection while the power is on, it causes a failure of the devices.
- Connect the computer and this monitor using a reverse type RS-232C cable (commercially available).
- In addition, when you connect two or more monitors as shown in the illustration below, connect the RS-232C OUT connector of the first monitor and the RS-232C IN connector of the second monitor using a reverse type RS-232C cable (commercially available). By repeating the connection in the similar way, you can connect monitors in a daisy chain configuration.

NOTE:

- Though you can connect up to 26 monitors, the maximum number of connectable monitors may be limited depending on the installation environment.


LCD monitor (first monitor)
LCD monitor (second monitor)
Computer
(RS-232C connection)
RS-232C
RS-232C OUT
RS-232C IN
RS-232C cable
RS-232C OUT
RS-232C IN
RS-232C cable

NOTE:

When only the 25-pin serial port is equipped as the serial communication port on the computer, a conversion adapter (commercially available) is necessary for the connection.

P-7 Connecting LAN

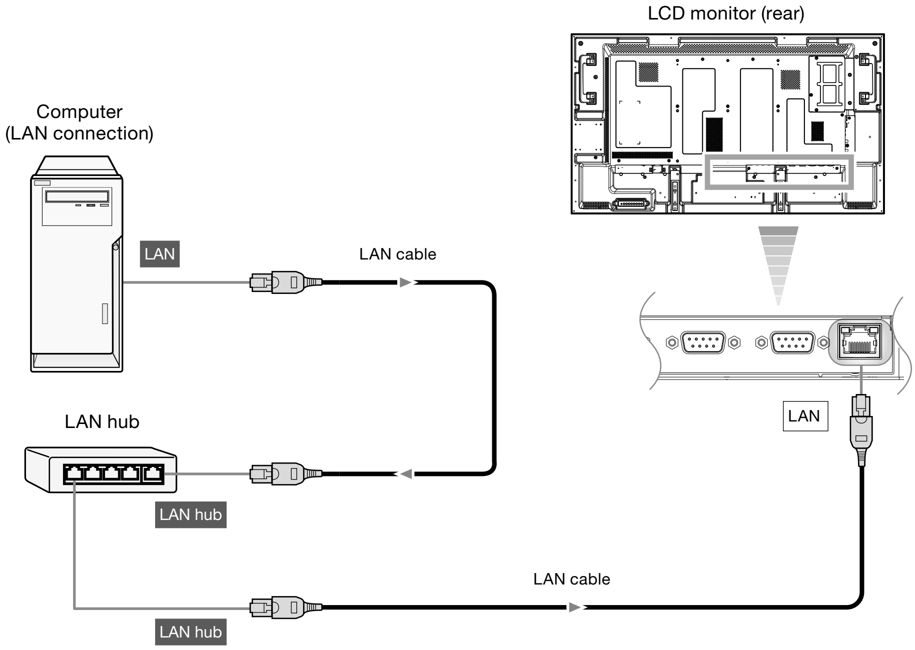
Carry out as necessary

Monitor connection using LAN

As shown in the illustration below, you can connect this monitor and a computer in network through a LAN hub. Connect the monitor and the LAN hub using a straight type LAN cable (commercially available).

How to connect

- Turn off the main power switch of the computer and this monitor. If you make a connection while the power is on, it causes a failure of the devices.
- Connect the computer and the LAN hub using a straight type LAN cable (commercially available).
- Connect this monitor and the LAN hub using a straight type LAN cable (commercially available).
- When you connect two or more monitors, you can connect the monitor and the LAN hub using a straight type LAN cable (commercially available) as described above.



NOTE:

- When you use a cross type LAN cable (commercially available), you can connect the monitor and the computer one-to-one without using a LAN hub, however, the computer may not be supported. It is recommended to check the operation in advance.
- The image transfer function via the LAN isn't supported. This monitor isn't equipped with the host function for controlling other devices.

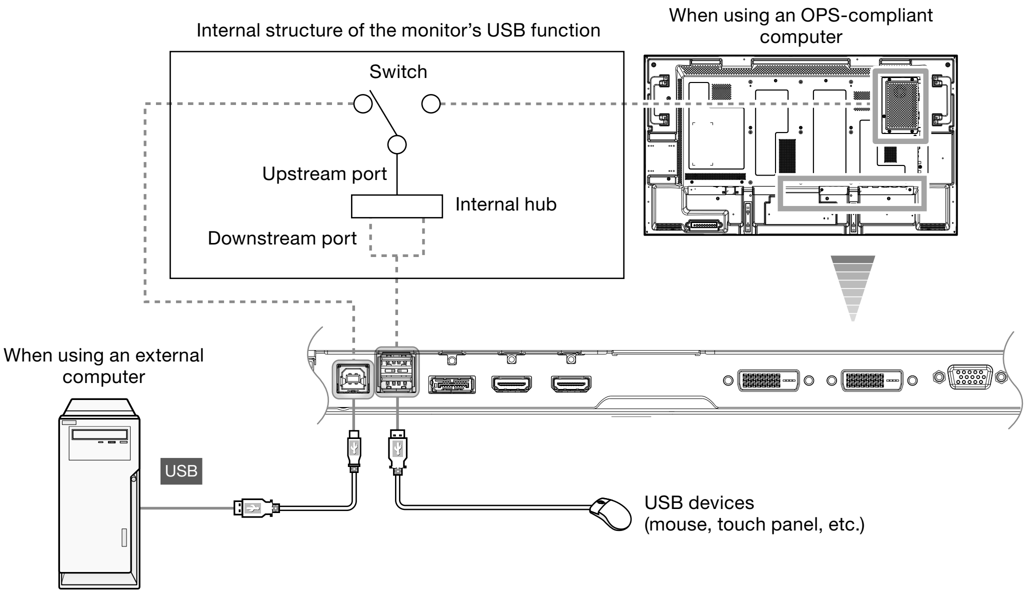
P-8 Connecting a USB device

Carry out as necessary

Connecting multiple USB devices using the USB hub function

The USB hub of this monitor is equipped with two switchable upstream ports. One is for connecting an external computer, and the other is for connecting an OPS-compliant computer internally. Only the selected upstream port is connected to the USB hub. Use the OSD screen function to select the appropriate upstream port. See pages 45 and 57.

1. **[When using an external computer]**
   Connect the USB port (Standard A) on the computer and the USB upstream port (Standard B) on the monitor using a USB cable (commercially available).
   [When using an OPS-compliant computer]
   Install an OPS-compliant computer (connected internally).
2. Connect a USB device to the downstream port of this monitor.


Internal structure of the monitor’s USB function
Switch
Upstream port
Internal hub
Downstream port
When using an OPS-compliant computer
When using an external computer
USB
USB devices
(mouse, touch panel, etc.)

NOTE:

- The USB hub function cannot control the monitor.
- Up to 5 hubs can be cascaded in the hub function of this monitor. Carry out operation check in advance even if you connect a device pursuant to the USB standards.

P-9 Connecting the power cord to the monitor

Connecting the power source

Before making connections

- Check that the main power switch is off.

  CAUTION:

  When an OPS-compliant computer is installed and the main power switch of the monitor is on, connecting the power source may cause the computer to power on, causing damage or breakdown of the operation system and the hard disc.
- The power outlet socket should be installed as near the equipment as possible and should be easily accessible.

NOTE:

Please refer to “Safety Precautions, Maintenance & Recommended Use” in this manual for proper selection of the AC power cord.
Use the clamper to prevent accidental disconnection of the power cord.

1. Insert the power connector of the power cord fully and firmly into the AC IN connector of the monitor.
2. Secure the power connector using the cable holder (accessory).

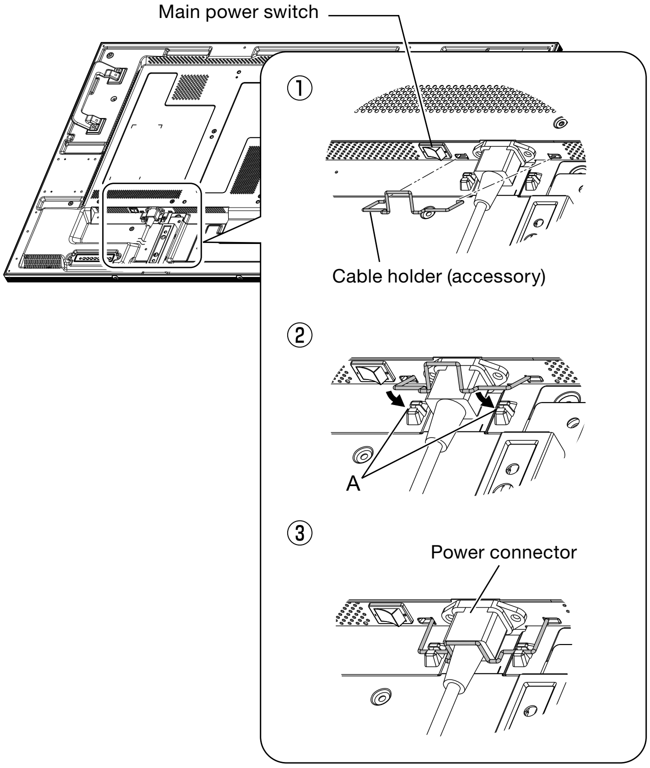
   CAUTION:

   Don’t insert the cable holder into the power outlet socket. Doing so may cause electric shock.

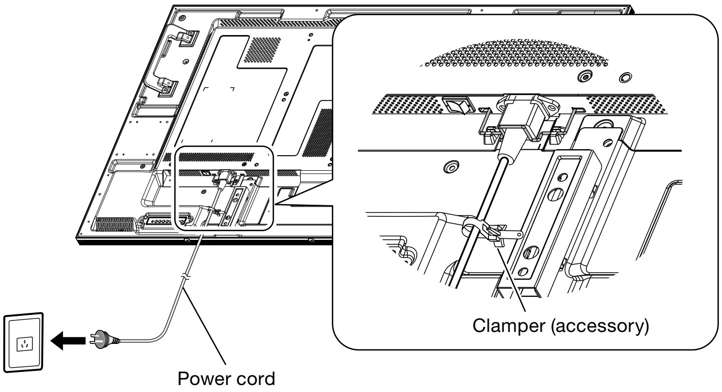
   ① Fit both ends of the cable holder to the monitor.

   ② Engage the cable holder in Parts A.

   ③ Secure the power connector with the cable holder.

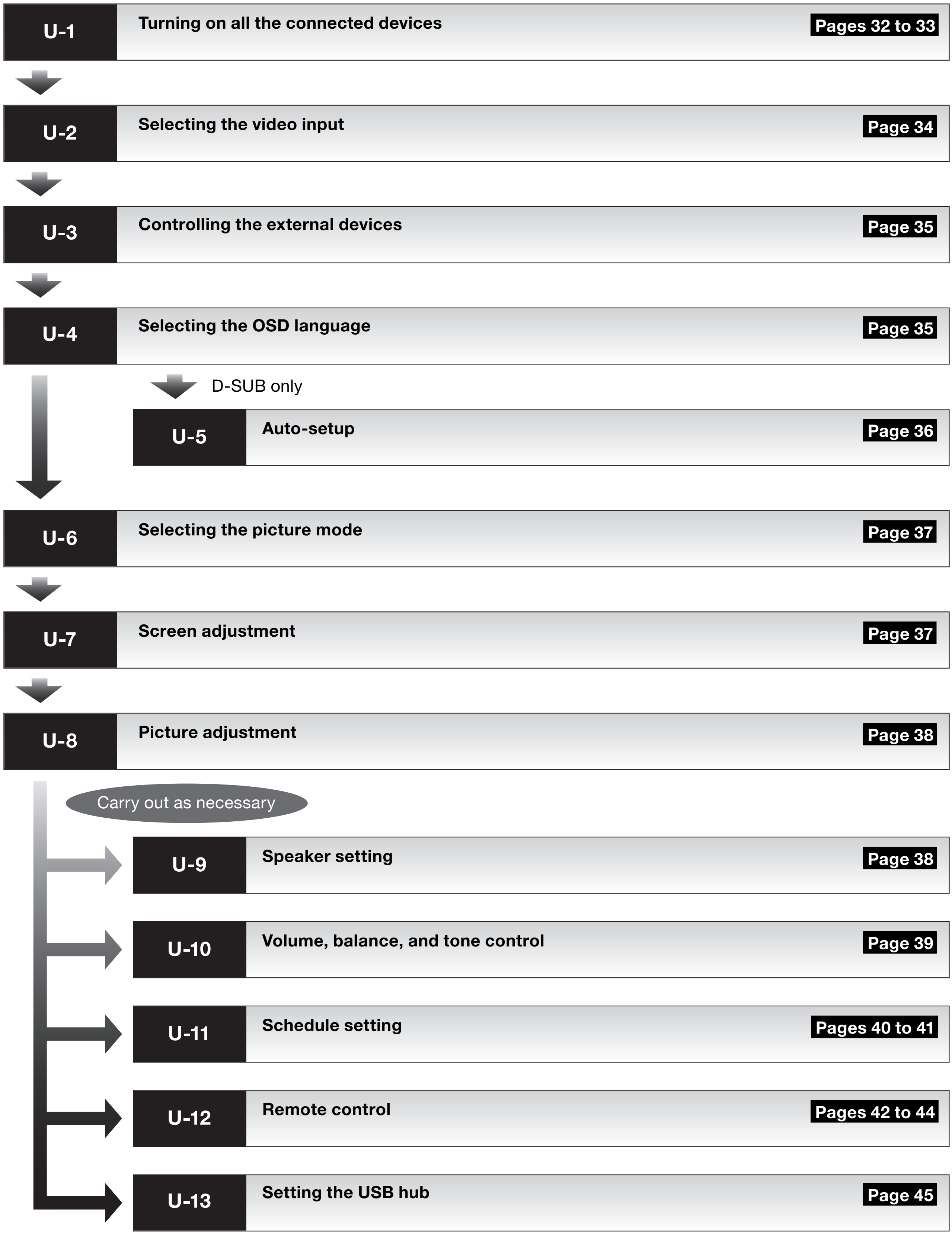


3. Secure the power cord using the clamper (accessory).
4. Insert the power plug into the power outlet socket.
   - Fully insert the prongs into the power outlet socket. Loose connection may cause noise.
   - Don’t plug and unplug the power cord repeatedly in a short time of period.



How to Use

Flow of How to Use



- **U-1** Turning on all the connected devices — Pages 32 to 33
- **U-2** Selecting the video input — Page 34
- **U-3** Controlling the external devices — Page 35
- **U-4** Selecting the OSD language — Page 35
  - D-SUB only
  - **U-5** Auto-setup — Page 36
- **U-6** Selecting the picture mode — Page 37
- **U-7** Screen adjustment — Page 37
- **U-8** Picture adjustment — Page 38

Carry out as necessary

- **U-9** Speaker setting — Page 38
- **U-10** Volume, balance, and tone control — Page 39
- **U-11** Schedule setting — Pages 40 to 41
- **U-12** Remote control — Pages 42 to 44
- **U-13** Setting the USB hub — Page 45

U-1 Turning on all the connected devices

Turning on external devices

1. Turn on the connected devices such as the computer and DVD player.

Turning on the monitor

CAUTION:

When an OPS-compliant computer is installed as an expansion module, the computer automatically turns on and starts as the monitor is turned on.

Don't turn off the monitor immediately after turning it on because the computer may be in the startup process. Select OPTION as the video input and wait for the operating system of the computer to complete the startup process.

NOTE:

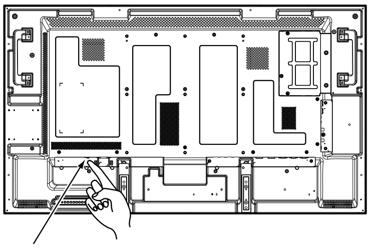
When the computer doesn't start within a given period of time (approx. 1 minute), "OPERATION ERROR" and an error message are displayed. See the user's manual of your computer.

2. Turn on the Main Power Switch.

The power indicator turns on green and the monitor turns on.

The control buttons on the rear, wireless remote control, and schedule setting don't work while the main power switch is off (the power indicator is off).

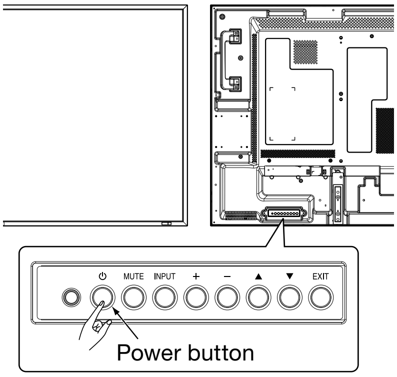
When using them, check that the Main Power Switch is on (the power indicator is on).



Main power switch

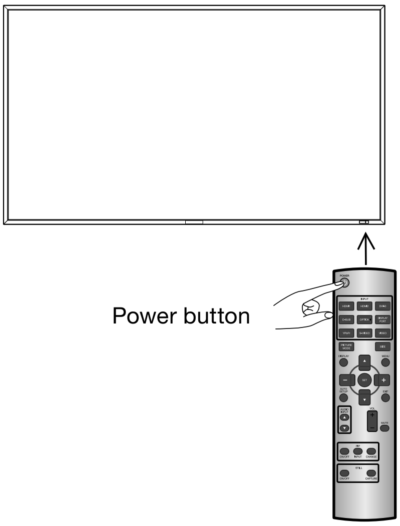
3. When the power indicator glows red, press the POWER button on the monitor.

The power indicator turns green.



Power button

or



Power button

Wireless remote control

NOTE:

Within 2 seconds after turning off the power by the POWER button on the wireless remote control or the monitor or by a communication command, don't turn off the main power switch, don't disconnect the power cord, and don't turn off the breaker. If the AC power is turned off immediately after the power-off operation, all the OSD settings including the language selection may be reset to the factory defaults at the next power-on.

If the OSD settings are reset to the factory defaults as described above, reconfigure the OSD settings using the following procedure.

1. Turn off the power of the monitor using the wireless remote control or otherwise.
2. Wait for at least 2 seconds.
3. Turn on the power of the monitor using the wireless remote control or otherwise.
4. Check and reconfigure the OSD settings.

Power Management Function

This function reduces the power consumption of the monitor when the keyboard or the mouse is not used for a fixed period even though the power of the monitor is on.
While this function is working, the screen becomes dark and the power indicator glows green and red.
This function is available only when a computer equipped with the VESA-approved DPM Power Management function is connected to the monitor.
When the power saver in the OSD menu is turned ON, the power management function works.

RGB: When the sync signal of computer input (HDMI1, HDMI2, DVI-D, D-SUB, DISPLAYPORT) is terminated, the monitor will be in the sleep mode in several seconds.

VIDEO: When the sync signal of video input (YPbPr, S-VIDEO, or VIDEO) is terminated, the monitor will be in the sleep mode in approximately 10 minutes.

[Description]

DPM: Acronym for Display Power Management

NOTE:

- The default power management settings (power savers) for RGB and VIDEO are ON.
- When an expansion module is in the option slot, the monitor doesn’t enter the sleep mode even when POWER SAVE in the CONFIGURATION1 menu is set to ON. Even when other video input is selected, the monitor doesn’t enter the sleep mode.

Power Indicator

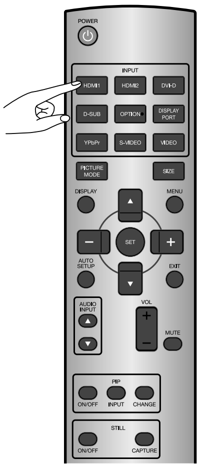
Status	LED
Power-on mode	Green
Power-off mode	Red
Power Standby when “SCHEDULE” is enable	Red On Green Blinking
Sleep mode	Red, Green
The main power is off.	Off
Diagnosis (Detecting failure)	Red Blinking * See troubleshooting on page 63.

U-2 Selecting the video input

You can select the desired video input using the wireless remote control or the INPUT button on the monitor.

■ Select using the INPUT buttons on the wireless remote control.

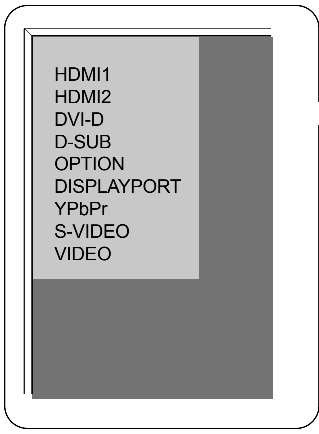
You can select the desired video input by pressing the corresponding INPUT button on the wireless remote control.
Selectable video inputs are [HDMI1], [HDMI2], [DVI-D], [D-SUB], [OPTION]*, [DISPLAYPORT], [YPbPr], [S-VIDEO], and [VIDEO].
* OPTION can be used when an expansion module is mounted on the option slot.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE

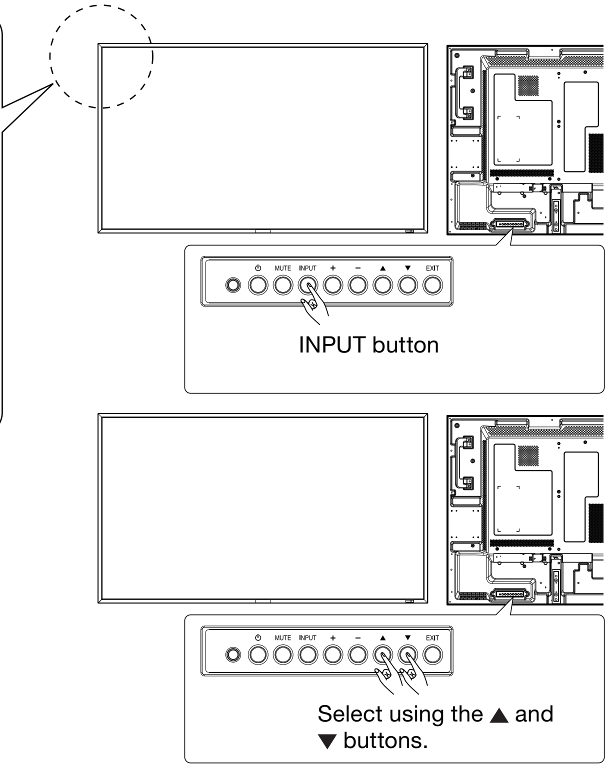
■ Select using the INPUT button on the monitor.

When you press the INPUT button on the monitor, the video input OSD menu is displayed and you can select the video input using the ▲ and ▼ buttons.
Selectable video inputs are [HDMI1], [HDMI2], [DVI-D], [D-SUB], [OPTION]*, [DISPLAYPORT], [YPbPr], [S-VIDEO], and [VIDEO].
When you press the INPUT button again, the selected video input is displayed.
* OPTION can be used when an expansion module is mounted on the option slot.

NOTE:
The selection you make doesn't complete unless you press the INPUT button while the video input OSD menu is displayed. The time during which the video input OSD menu is displayed is same as that of the INFORMATION OSD. See page 55.

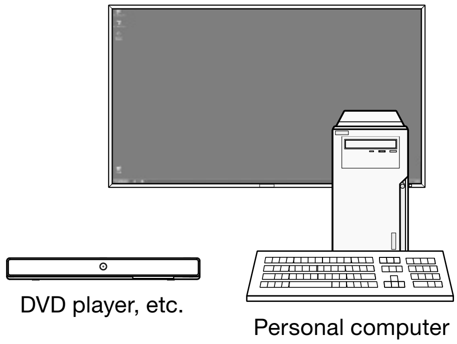

HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAYPORT
YPbPr
S-VIDEO
VIDEO

Video input OSD menu


MUTE
INPUT
+
−
▲
▼
EXIT
INPUT button
MUTE
INPUT
+
−
▲
▼
EXIT
Select using the ▲ and ▼ buttons.

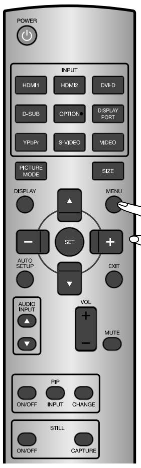
U-3 Controlling the external devices

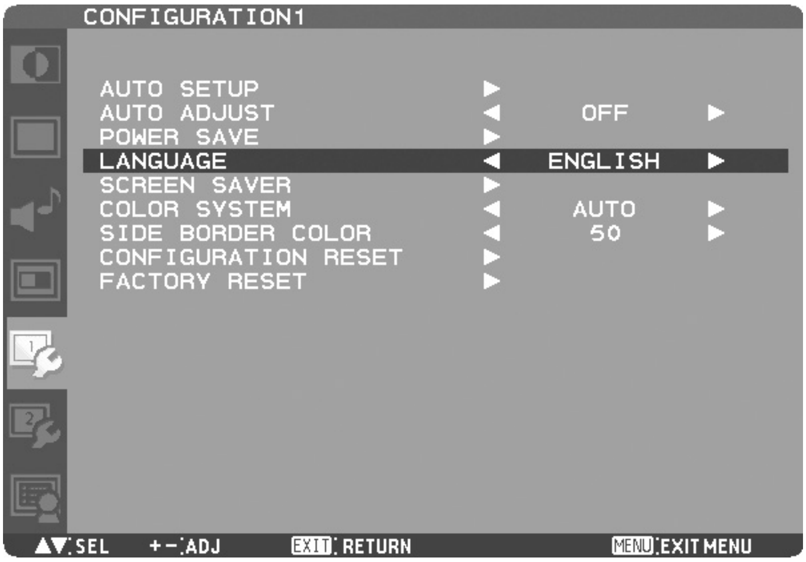
To control the connected external devices, display images on the monitor.


DVD player, etc.
Personal computer

U-4 Selecting the OSD language

Display the OSD menu by pressing the MENU button on the wireless remote control or the EXIT button on the rear of the monitor. Using LANGUAGE in the CONFIGURATION1 menu of the OSD screen function, you can select the OSD language. See page 53.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE



```
CONFIGURATION1

AUTO SETUP               ▶
AUTO ADJUST              ◀      OFF       ▶
POWER SAVE               ▶
LANGUAGE                 ◀    ENGLISH     ▶
SCREEN SAVER             ▶
COLOR SYSTEM             ◀     AUTO       ▶
SIDE BORDER COLOR        ◀      50        ▶
CONFIGURATION RESET      ▶
FACTORY RESET            ▶

▲▼:SEL   +−:ADJ      EXIT: RETURN          MENU:EXIT MENU
```

U-5 Auto-setup

analog inputs only

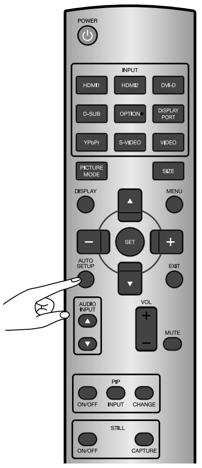
Press the AUTO SETUP button on the wireless remote control to directly display the AUTO SETUP menu of the OSD screen function.

Alternatively, press the MENU button on the wireless remote control or the EXIT button on the rear of the monitor to display the OSD screen, and then display the AUTO SETUP menu by selecting AUTO SETUP in the CONFIGURATION1 menu.

By pressing the SET button, you can automatically and properly adjust the screen size, horizontal/vertical position, clock, clock phase, and input signal level.

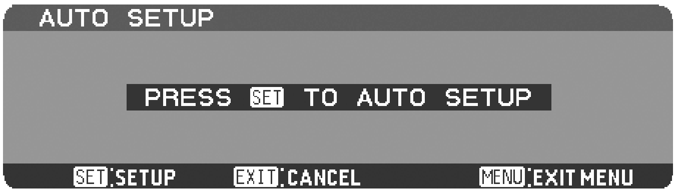
NOTE:

The auto setup works on D-SUB only.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE

Displaying the AUTO SETUP menu directly

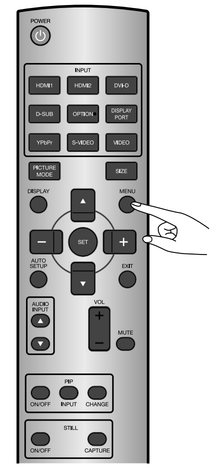
AUTO SETUP menu screen



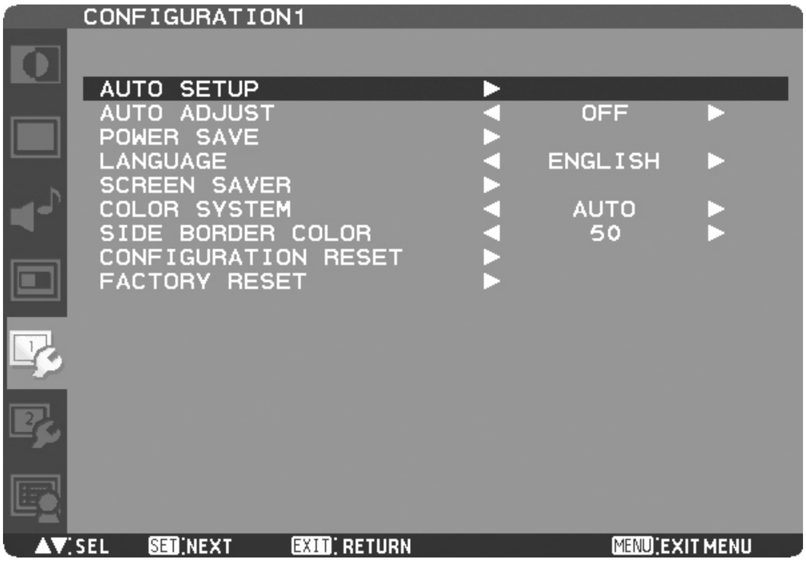
AUTO SETUP

PRESS SET TO AUTO SETUP

SET: SETUP   EXIT: CANCEL   MENU: EXIT MENU


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE

Displaying the OSD menu



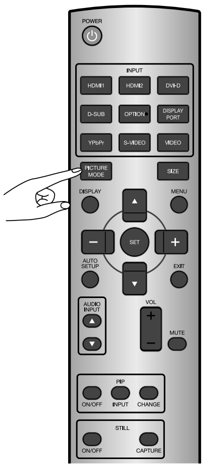
CONFIGURATION1

AUTO SETUP ▶	
AUTO ADJUST ◀	OFF ▶
POWER SAVE ▶	
LANGUAGE ◀	ENGLISH ▶
SCREEN SAVER ▶	
COLOR SYSTEM ◀	AUTO ▶
SIDE BORDER COLOR ◀	50 ▶
CONFIGURATION RESET ▶	
FACTORY RESET ▶	

▲▼: SEL   SET: NEXT   EXIT: RETURN   MENU: EXIT MENU

U-6 Selecting the picture mode

Using the PICTURE MODE button on the wireless remote control, you can select the picture mode suitable for images to be displayed.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE

HIGHBRIGHT:	The brightness is maximized.
STANDARD:	Factory default setting.
sRGB:	Suitable for color matching with sRGB-compliant devices.
CINEMA:	Suitable for viewing movies.

NOTE:

- “sRGB” can be selected for computer input (HDMI1*, HDMI2*, DVI-D, D-SUB, OPTION (OPS-compliant computer), and DISPLAYPORT).
- “CINEMA” can be selected for video input (HDMI1*, HDMI2*, OPTION (SDI), YPbPr, VIDEO, and S-VIDEO).

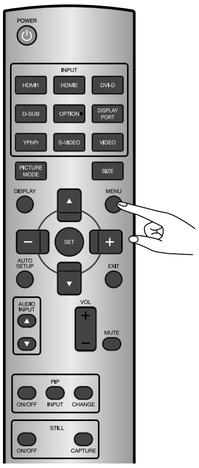
* Automatically selected depending on the input signal.

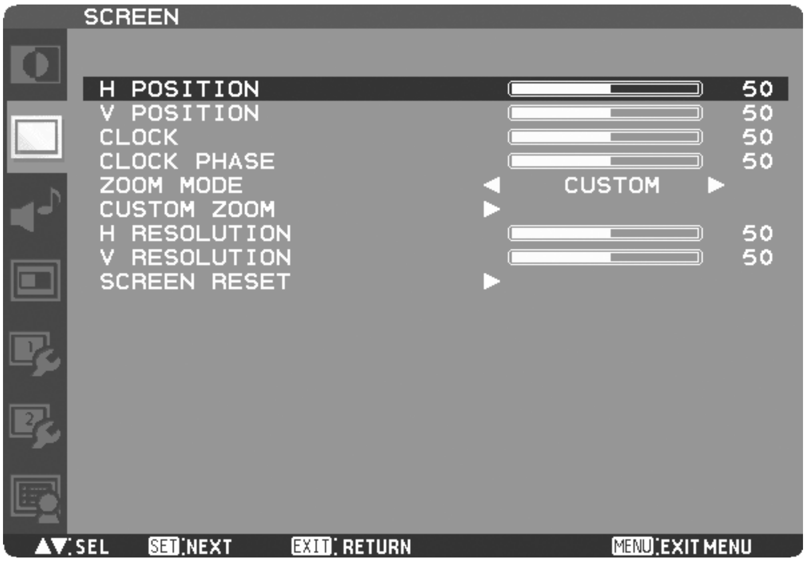
U-7 Screen adjustment

When images aren’t displayed properly even after the auto setup, adjust the screen settings.
Display the OSD menu by pressing the MENU button on the wireless remote control or the EXIT button on the rear of the monitor.
Using the SCREEN menu of the OSD screen function, you can adjust the horizontal/vertical position, clock, clock phase, zoom mode, custom zoom, and horizontal/vertical resolutions to obtain proper screen condition.

NOTE:

The position adjustment works on D-SUB, YPbPr, S-VIDEO, and VIDEO only.
The clock adjustment and the resolution adjustment work on D-SUB only.
The zoom adjustment works on all video inputs.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE

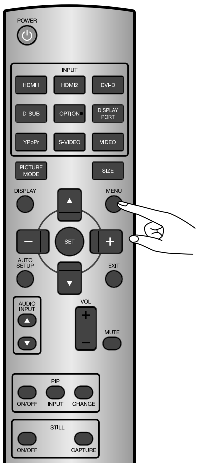

SCREEN

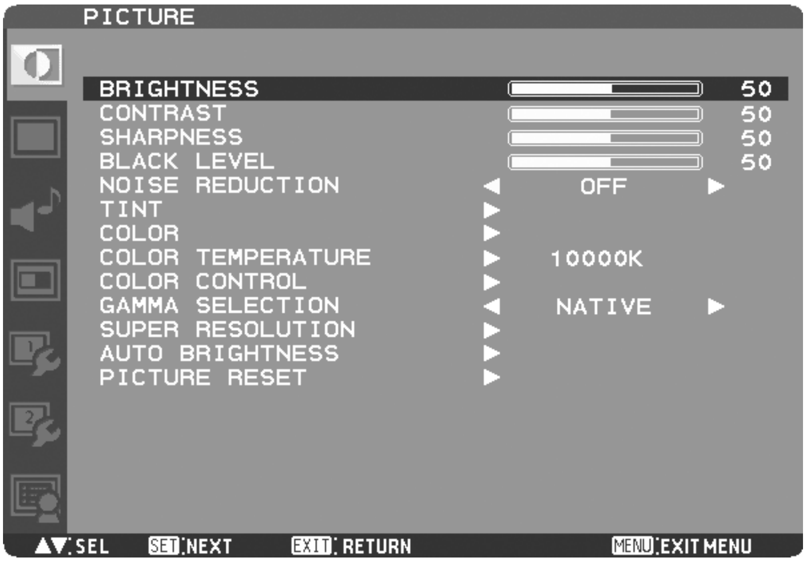
H POSITION 50
V POSITION 50
CLOCK 50
CLOCK PHASE 50
ZOOM MODE ◀ CUSTOM ▶
CUSTOM ZOOM ▶
H RESOLUTION 50
V RESOLUTION 50
SCREEN RESET ▶

▲▼: SEL
SET: NEXT
EXIT: RETURN
MENU: EXIT MENU

U-8 Picture adjustment

Display the OSD menu by pressing the MENU button on the wireless remote control or the EXIT button on the rear of the monitor. Using the PICTURE menu of the OSD screen function, you can adjust the picture settings such as the brightness, contrast, and sharpness to obtain desired image quality.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE



PICTURE

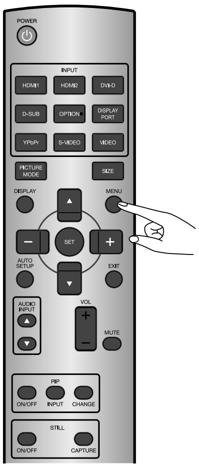
BRIGHTNESS 50
CONTRAST 50
SHARPNESS 50
BLACK LEVEL 50
NOISE REDUCTION ◄ OFF ►
TINT ►
COLOR ►
COLOR TEMPERATURE ► 10000K
COLOR CONTROL ►
GAMMA SELECTION ◄ NATIVE ►
SUPER RESOLUTION ►
AUTO BRIGHTNESS ►
PICTURE RESET ►

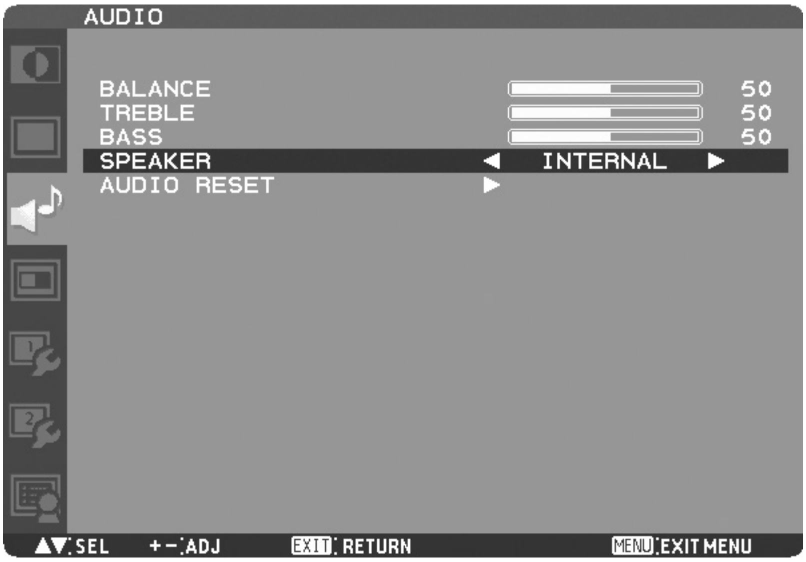
▲▼:SEL
SET:NEXT
EXIT: RETURN
MENU:EXIT MENU

U-9 Speaker setting

Carry out as necessary

Select the built-in speakers or the external special stereo speakers (option) in the speaker setting in the OSD menu.
Display the OSD menu by pressing the MENU button on the wireless remote control or the EXIT button on the rear of the monitor. Using SPEAKER in the AUDIO menu of the OSD screen function, you can select the speakers.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE



AUDIO

BALANCE 50
TREBLE 50
BASS 50
SPEAKER ◄ INTERNAL ►
AUDIO RESET ►

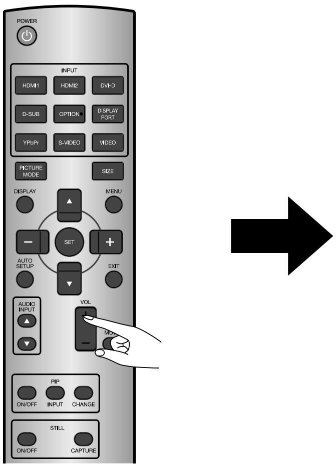
▲▼:SEL
+-:ADJ
EXIT: RETURN
MENU:EXIT MENU

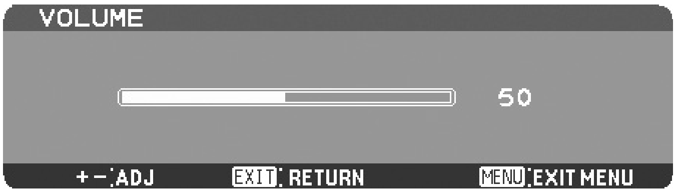
U-10 Volume, balance, and tone control

Carry out as necessary

Volume control

You can control the volume level using the VOL button on the wireless remote control.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE



VOLUME

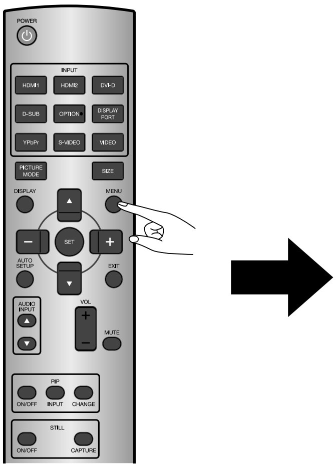
50

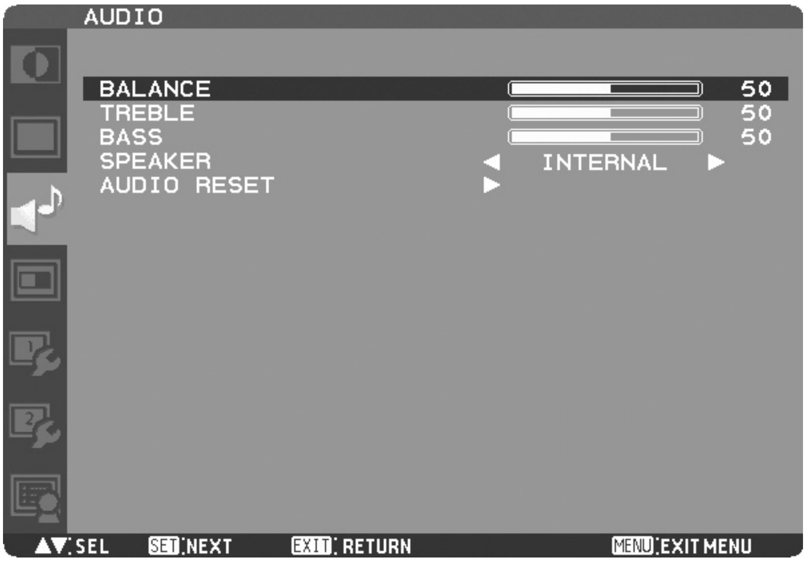
+−: ADJ
EXIT: RETURN
MENU: EXIT MENU

Balance and tone adjustment

You can adjust the speaker balance, treble, and bass using the AUDIO menu of the OSD screen function.

For adjustment, display the OSD menu by pressing the MENU button on the wireless remote control or the EXIT button on the rear of the monitor.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE



AUDIO

BALANCE 50
TREBLE 50
BASS 50
SPEAKER ◀ INTERNAL ▶
AUDIO RESET ▶

▲▼: SEL
SET: NEXT
EXIT: RETURN
MENU: EXIT MENU

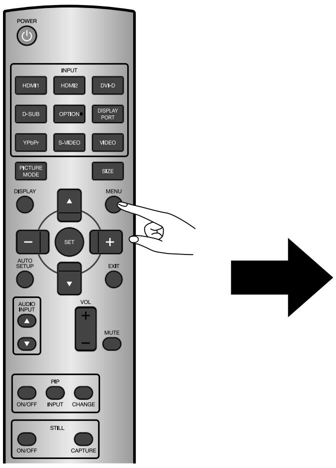
NOTE:

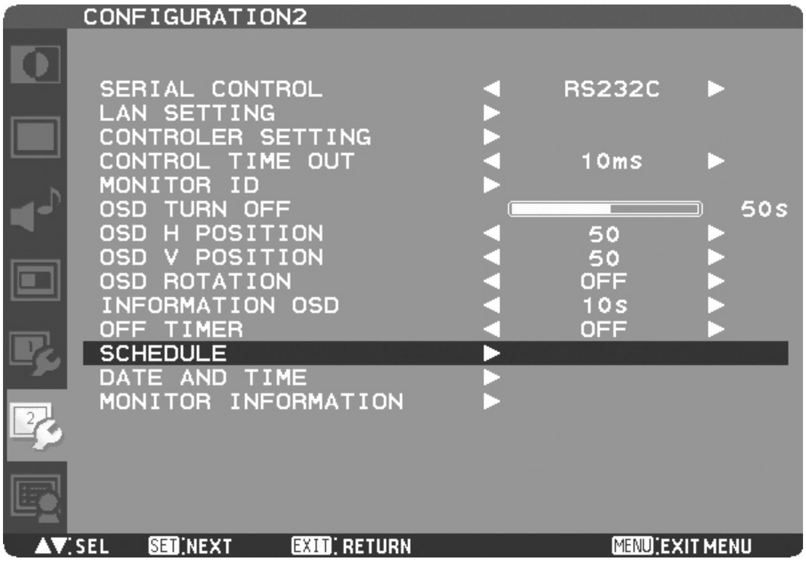
If no audio is output when an OPS-compliant computer is in use, check that the monitor is selected as the audio output source by the operating system of the computer. For the selection method, see the help or the user’s manual of the operating system for the computer or the driver for the audio device.

U-11 Schedule setting

Carry out as necessary

Display the OSD menu by pressing the MENU button on the wireless remote control or the EXIT button on the rear of the monitor. Using SCHEDULE in the CONFIGURATION2 menu of the OSD screen function, you can program power-on/off and input selection.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE


CONFIGURATION2

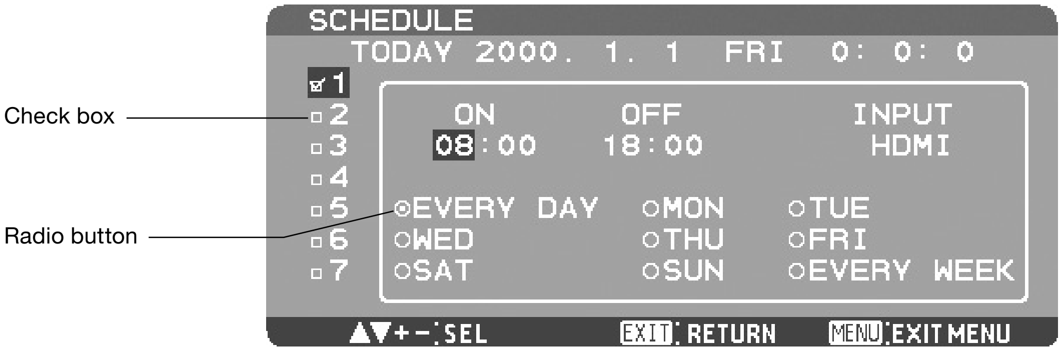
SERIAL CONTROL ◄ RS232C ►
LAN SETTING ►
CONTROLER SETTING ►
CONTROL TIME OUT ◄ 10ms ►
MONITOR ID ►
OSD TURN OFF 50s
OSD H POSITION ◄ 50 ►
OSD V POSITION ◄ 50 ►
OSD ROTATION ◄ OFF ►
INFORMATION OSD ◄ 10s ►
OFF TIMER ◄ OFF ►
SCHEDULE ►
DATE AND TIME ►
MONITOR INFORMATION ►

▲▼:SEL
SET:NEXT
EXIT:RETURN
MENU:EXIT MENU

U-11 Schedule setting (continued)

Carry out as necessary

How to set up schedule



```
SCHEDULE
   TODAY 2000. 1. 1  FRI  0: 0: 0
☑1
☐2     ON        OFF          INPUT
☐3    08:00     18:00          HDMI
☐4
☐5   ◉EVERY DAY   ○MON    ○TUE
☐6   ○WED         ○THU    ○FRI
☐7   ○SAT         ○SUN    ○EVERY WEEK
   ▲▼+-: SEL        EXIT: RETURN    MENU: EXIT MENU
```

Program number selection

When the cursor is in any of the check boxes showing the program numbers 1 to 7 on the left side of the screen, press the UP (▲) or DOWN (▼) button to move the cursor up or down to select the program number you want to set.

To enable the selected program number, press the SET button to place a checkmark in the check box. To disable it, clear the checkmark.

Schedule setting of each program

When the cursor is in any of the check boxes, pressing the PLUS (+) button moves the cursor into the white frame on the right.

When the cursor is at any of the items within the white frame, pressing the PLUS (+) button moves the cursor to the right, and MINUS (-) button to the left.

You can set the power-on/off time and video input by pressing the UP (▲) or DOWN (▼) button. In addition, you can select or deselect the radio buttons by pressing the SET button.

ON:	Set the time when the power is turned on. If you don't want to set the power-on time, enter "--."
OFF:	Set the time when the power is turned off. If you don't want to set to the power-off time, enter "--."
INPUT:	Displays the video input selected when the power is turned on. If you want to select the video input that was selected before the power is turned on, enter "--." When you set the ON time and the video input, you can switch the video input alone.
EVERY DAY:	Select this option to execute the schedule every day. When you select EVERY DAY, you cannot select any days of the week and EVERY WEEK.
MON - SUN:	Select the days of the week on which you want to execute the schedule. Unless you select EVERY WEEK, too, the selection of the days of the week is cleared after the schedule is executed one time.
EVERY WEEK:	Select this option to execute the schedule on the selected days of the week, every week.

Schedule confirmation

To confirm the schedule, press the MENU button on the wireless remote control or the EXIT button on the rear of the monitor to exit the SCHEDULE menu of the OSD screen function.

If you turn off the power before exiting the SCHEDULE menu, the schedule settings may be canceled.

NOTE:

- Before making the schedule settings, be sure to check the current date and time using "DATE AND TIME."
- When you close the SCHEDULE screen, the settings are saved.
- When two or more schedules are enabled, they are executed in descending order of the program number, and the power is turned off upon completion of the last executed schedule.
- When there are two or more schedules having the same power-on/off time, the one having the largest program number is executed.
- You cannot set the power-on time and the power-off time to the same time.
- When OFF TIMER is ON, the schedule settings are ignored.
- When the main power switch or AC power supply turns off or the circuit breaker trips due to power failure or other causes, the schedule programs you set aren't executed.

U-12 Remote control

Carry out as necessary

RS-232C Remote control

When the monitor is connected directly to a computer using an RS-232C cable (commercially available), the following operations can be controlled via a communication. Select the communication interface (RS-232C) used for the serial communication function. (See page 54.)

- Power ON or OFF
- Switching between input signals
- Volume control and mute
- Auto setup
- Check of the internal temperature of the monitor, etc.

NOTE:
For connection with a 25-pin serial port connector on the computer, a conversion adapter (commercially available) is required.

1) Interface

PROTOCOL	RS-232C
BAUD RATE	9600 [bps]
DATA LENGTH	8 [bit]
PARITY BIT	NONE
STOP BIT	1 [bit]
FLOW CONTROL	NONE

- For direct connection using RS-232C, use the RXD, TXD, and GND lines.

2) Control command diagram
The command is structured by the address code, function code, data code and end code. The length of the command is different for each function.

NOTE:

- This example shows a basic command that is used when a single computer and a single monitor are connected.
  When you want to connect multiple monitors or perform complicated control using other commands than the basic commands, contact your dealer for advanced command specifications.
- To send commands with a keypad using terminal software, select “2s” or “30s” for CONTROL TIME OUT in CONFIGURATION2 in the OSD menu. (Follow the same procedure for LAN control.)

	Address code	Function code	Data code	End code
HEX	30h 30h	Function	Data	0Dh
ASCII	‘0’ ‘0’	Function	Data	↵

[Address code]	30h 30h (ASCII code, ‘0’ ‘0’), fixed.
[Function code]	Code unique to each control function.
[Data code]	Data unique to each control function (Not always indicated by numerical values.)
[End code]	0Dh (ASCII code, ‘↵’) fixed.

3) Control sequence
(1) A command is sent from the computer to the monitor. (Commands should be sent at intervals of at least 600 ms.)
(2) The monitor sends a return command within 600 ms* after receiving the end code. If the monitor fails to receive the command, it doesn’t send any return command. (*During the power-on/off or input selection process, the transmission of the return command may take more than 600 ms.)
(3) The computer checks the return command to see whether the command it sent was received or not. The computer must receive the return command before sending the next command.
(4) The monitor sends various codes other than commands including the return command. While RS-232C control sequence is in progress, the computer must reject the codes.

Example: Turn the power ON (‘ ’ is for ASCII code)

Control command from computer	Return command from monitor to computer	Description of command
30 30 21 0D ‘0’ ‘0’ ‘!’ ‘↵’		Sending a command for power-on
	30 30 21 0D ‘0’ ‘0’ ‘!’ ‘↵’	Command received (Command echoed back)

U-12 Remote control (continued)

4) Operation commands

The operation commands configure the basic operation settings of this LCD monitor. The commands may not work during signal switchover.

The operation commands have no data codes.

Operation	ASCII	HEX
POWER ON	!	21h
POWER OFF	"	22h
FORCE POWER OFF WITH OPS*	" "	22h 22h
INPUT HDMI1	_r1	5Fh 72h 31h
INPUT HDMI2	_r7	5Fh 72h 37h
INPUT DVI-D	_r2	5Fh 72h 32h
INPUT D-SUB	_r3	5Fh 72h 33h
INPUT OPTION**	_r5	5Fh 72h 35h
INPUT DISPLAYPORT	_r6	5Fh 72h 36h
INPUT VIDEO	_v1	5Fh 76h 31h
INPUT YPbPr	_v2	5Fh 76h 32h
INPUT S-VIDEO	_v3	5Fh 76h 33h
VOLUME UP	r06	72h 30h 36h
VOLUME DOWN	r07	72h 30h 37h
AUTO SETUP	r09	72h 30h 39h
AUDIO MUTE	ra6	72h 61h 36h

* Used when the OPS-compliant computer makes no response.

** OPTION can be used when an expansion module is mounted on the option slot.

- After sending the POWER ON or POWER OFF command, wait for at least 14 seconds to send the next command.
- After sending a command for video input selection, wait for at least 5 seconds to send the next command. Otherwise, the monitor may not reply within 600 ms.
- Set the timeout value of the control device on the host side to 30 seconds or longer.
- In the power-off mode, only the POWER ON operation command and the power status acquisition commands described in the next paragraph work.
- In the sleep mode, only the POWER ON and POWER OFF operation commands and the power status acquisition commands described in the next paragraph work.
  - When no expansion module is mounted, the FORCE POWER OFF WITH OPS operation command is unavailable.
  - When an expansion module is mounted, all the input connectors don’t enter the sleep mode.
- After turning off the power using an operation command, wait for at least 2 seconds to turn off the AC power using the main power switch or the breaker. Otherwise, the OSD settings may be reset to the factory defaults.

U-12 Remote control (continued)

Carry out as necessary

5) Read command
The computer sends the command without datacode to the monitor.
After receiving this command, the monitor returns the command with datacode including the current status to the computer.
Example: When the computer asks the power status of the monitor, and the status of the monitor is powered-on.

Control command from computer	Return command from monitor to computer	Description of command
30 30 76 50 0D ‘0’‘0’‘v’‘P’[enter]		Sending a command for checking the power status
	30 30 76 50 31 0D ‘0’‘0’‘v’‘P’‘1’[enter]	Monitor is powered-on.

Structure of the Read-command

			ASCII		HEX	
			Function	Data (Receive)	Function	Data (Receive)
POWER	ON		vP	1	76 50	31
	OFF (Sleep)		vP	0	76 50	30
Input	HDMI1		vI	r1	76 49	72 31
	HDMI2		vI	r7	76 49	72 37
	DVI-D		vI	r2	76 49	72 32
	D-SUB		vI	r3	76 49	72 33
	OPTION*		vI	r5	76 49	72 35
	DISPLAYPORT		vI	r6	76 49	72 36
	VIDEO		vI	v1	76 49	76 31
	YPbPr		vI	v2	76 49	76 32
	S-VIDEO		vI	v3	76 49	76 33
Internal temperature	Around the main board	Resolution 1°C	tc1	(ex.) +25	74 63 31	2B 20 32 35
	Around the power supply	Resolution 1°C	tc2	(ex.) +31	74 63 32	2B 20 33 31

* OPTION can be used when an expansion module is mounted on the option slot.

NOTE:
The monitor will acknowledge the power-on/off command issued from the OPS-compliant computer, however, it will not execute the command. This is not a malfunction. For automatic operation, use SCHEDULE in the CONFIGURATION2 menu of the OSD screen function.

LAN Remote control

When you connect the monitor and the computer using a LAN hub and a LAN cable (see page 28) and then configure the network settings using LAN SETTING in the CONFIGURATION2 menu of the OSD screen function, you can remote-control the monitor using the same commands as those for RS-232C.

1. Setting procedure
   (1) Select LAN as the communication interface used for the serial communication function. (See page 54.)
   (2) Set the following network parameters using the OSD menu. (See page 54.)
       - DHCP client ON/OFF, IP address, subnet mask and default gateway.
   (3) Set the IP address described above and the port number (63007 or 3007) using the application program of your computer to perform the socket communication.
   (4) Send the same control command as that for RS-232C via TCP/IP socket communication.
   (5) Check the return command sent from the monitor. When it is received successfully, the setting is completed.

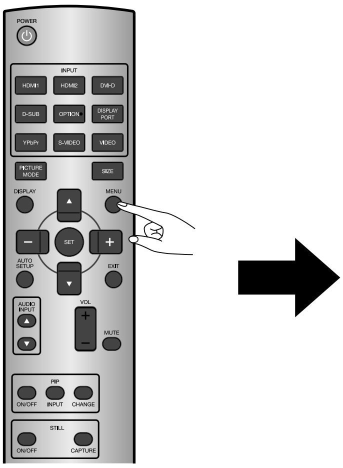
U-13 Setting the USB hub

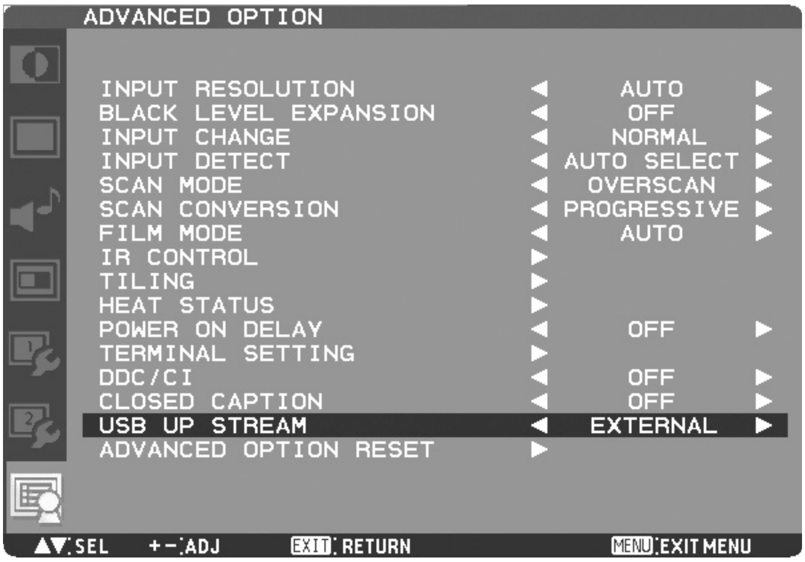
Carry out as necessary

NOTE:

- USB function may not work depending on the BIOS setting of the computer used, OS, and USB devices. In such a case, refer to the user's manual of each device and contact the respective manufacturer.
- Up to 5 hubs can be cascaded in the hub function of this monitor. Carry out operation check in advance even if you connect a device pursuant to the USB standards.
- The USB hub function cannot control the monitor.

1. Select the computer to be used.
   Display the OSD menu by pressing the MENU button on the wireless remote control or the EXIT button on the rear of the monitor.
   Using USB UPSTREAM in the ADVANCED OPTION menu of the OSD screen function, you can select the computer (EXTERNAL/OPS) to be used.


POWER
INPUT
HDMI1
HDMI2
DVI-D
D-SUB
OPTION
DISPLAY PORT
YPbPr
S-VIDEO
VIDEO
PICTURE MODE
SIZE
DISPLAY
MENU
SET
AUTO SETUP
EXIT
AUDIO INPUT
VOL
MUTE
PIP
ON/OFF
INPUT
CHANGE
STILL
ON/OFF
CAPTURE


ADVANCED OPTION

INPUT RESOLUTION	◀	AUTO ▶
BLACK LEVEL EXPANSION	◀	OFF ▶
INPUT CHANGE	◀	NORMAL ▶
INPUT DETECT	◀	AUTO SELECT ▶
SCAN MODE	◀	OVERSCAN ▶
SCAN CONVERSION	◀	PROGRESSIVE ▶
FILM MODE	◀	AUTO ▶
IR CONTROL	▶	
TILING	▶	
HEAT STATUS	▶	
POWER ON DELAY	◀	OFF ▶
TERMINAL SETTING	▶	
DDC/CI	◀	OFF ▶
CLOSED CAPTION	◀	OFF ▶
USB UP STREAM	◀	EXTERNAL ▶
ADVANCED OPTION RESET	▶	

▲▼:SEL
+−:ADJ
EXIT: RETURN
MENU:EXIT MENU

EXTERNAL:	External computer is selected.
OPS:	OPS-compliant computer is selected.

2. Check that the USB hub is recognized.
   The USB hub of this monitor is detected by the computer, and the OS-standard device driver is installed automatically. Some computers may not recognize the USB hub even if it is connected. In such a case, install the device driver for the USB hub referring to the user's manual of the computer.

   NOTE:
   It takes several seconds for the computer to recognize this monitor. Do not pull out the USB cable before the monitor is recognized, and do not repeat connecting/disconnecting of the cable instantaneously.
3. Check that the USB is recognized.
   Install the device driver of the USB device after the USB device is detected by the computer. The OS-standard device driver may be installed automatically.
   Some computers may not recognize the USB device even if it is connected. In such a case, see the user's manual of the USB device.

Configuration and basic operation of OSD screen

Configuration of OSD screen

This monitor is equipped with the OSD (On Screen Display) function for easy screen adjustment. The OSD function allows you to control the menus displayed on the screen for brightness setting and other settings.
The OSD screen is configured as shown below.

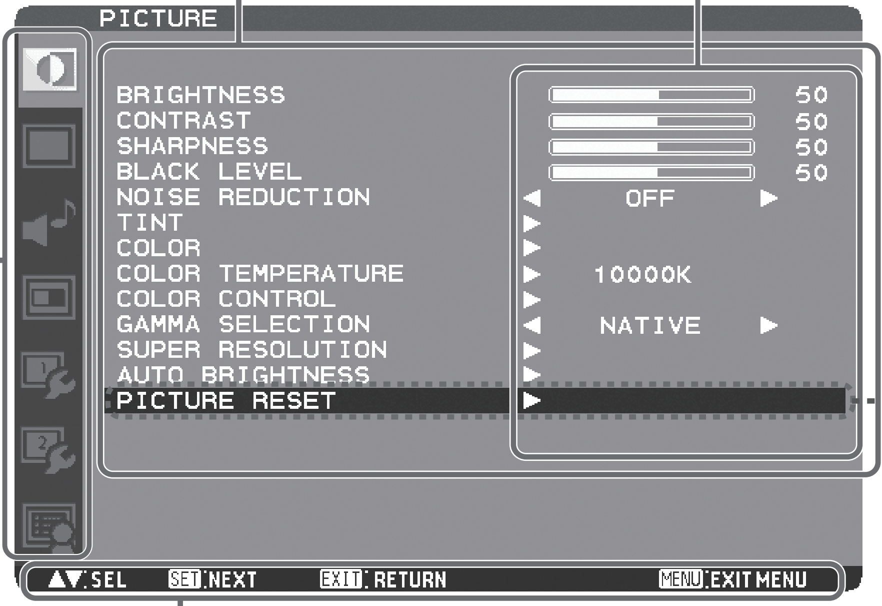
Main Menu Screen

Main menu
Icons other than the one you selected are grayed out.

PICTURE	Page 48	CONFIGURATION1	Page 53
SCREEN	Page 50	CONFIGURATION2	Page 54
AUDIO	Page 51	ADVANCED OPTION	Page 56
PIP	Page 52		

Sub menu (Adjustment items)
Adjustment items are displayed.

Adjustment status
The values adjusted by the wireless remote control and the PLUS (+) and MINUS (-) buttons on the monitor are displayed.

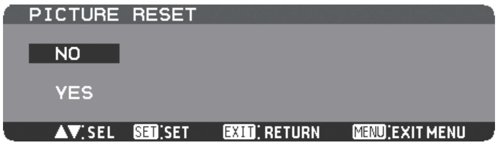


BRIGHTNESS 50
CONTRAST 50
SHARPNESS 50
BLACK LEVEL 50
NOISE REDUCTION ◀ OFF ▶
TINT ▶
COLOR ▶
COLOR TEMPERATURE ▶ 10000K
COLOR CONTROL ▶
GAMMA SELECTION ◀ NATIVE ▶
SUPER RESOLUTION ▶
AUTO BRIGHTNESS ▶
PICTURE RESET ▶

Control button guide
Buttons for controlling the displayed OSD menu are displayed.

Sub menu screen
When you select a sub menu, an OSD screen is displayed.
Sub menus contain information screens, adjustment menu screens, and selection menu screens as shown below.

Sub menu screen: Picture reset (for example)

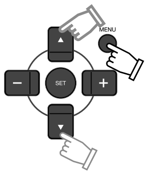
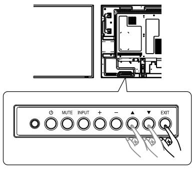
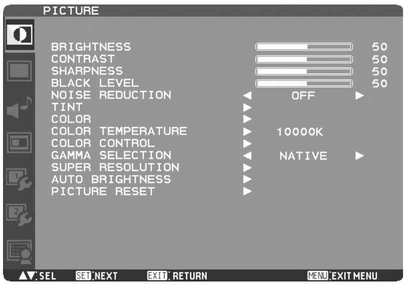
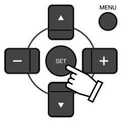
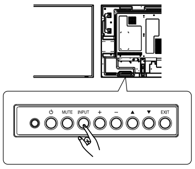
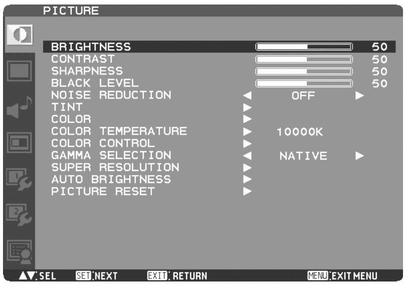
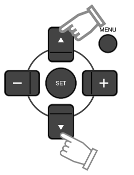
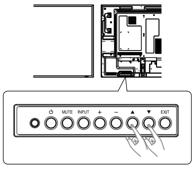
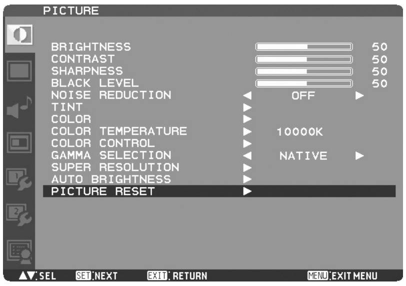
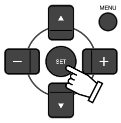
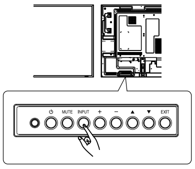
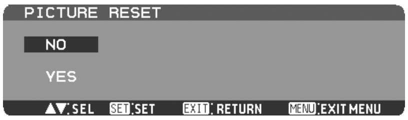
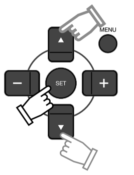
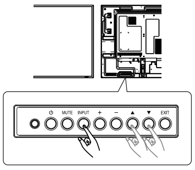
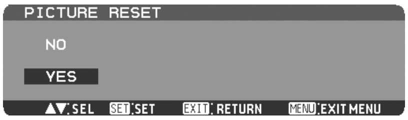


NO
YES

Configuration and basic operation of OSD screen (continued)

Basic operation of OSD

Check that the power indicator illuminates green and the monitor is powered on.

Step	Wireless remote control	Monitor button	OSD screen display
1	 Press the MENU button to display the OSD screen and then press the ▲ / ▼ button to select the main menu.	 Press the EXIT button to display the OSD screen and then press the ▲ / ▼ button to select the main menu.	 PICTURE BRIGHTNESS 50 CONTRAST 50 SHARPNESS 50 BLACK LEVEL 50 NOISE REDUCTION ◄ OFF ► TINT ► COLOR ► COLOR TEMPERATURE ► 10000K COLOR CONTROL ► GAMMA SELECTION ◄ NATIVE ► SUPER RESOLUTION ► AUTO BRIGHTNESS ► PICTURE RESET ► ▲▼:SEL SET:NEXT EXIT:RETURN MENU:EXIT MENU
2	 When you press the SET button to accept the selected main menu, the sub menu at the top is selected.	 When you press the INPUT button to accept the selected main menu, the sub menu at the top is selected.	 PICTURE BRIGHTNESS 50 CONTRAST 50 SHARPNESS 50 BLACK LEVEL 50 NOISE REDUCTION ◄ OFF ► TINT ► COLOR ► COLOR TEMPERATURE ► 10000K COLOR CONTROL ► GAMMA SELECTION ◄ NATIVE ► SUPER RESOLUTION ► AUTO BRIGHTNESS ► PICTURE RESET ► ▲▼:SEL SET:NEXT EXIT:RETURN MENU:EXIT MENU
3	 Press the ▲ / ▼ button to select a sub menu.	 Press the ▲ / ▼ button to select a sub menu.	 PICTURE BRIGHTNESS 50 CONTRAST 50 SHARPNESS 50 BLACK LEVEL 50 NOISE REDUCTION ◄ OFF ► TINT ► COLOR ► COLOR TEMPERATURE ► 10000K COLOR CONTROL ► GAMMA SELECTION ◄ NATIVE ► SUPER RESOLUTION ► AUTO BRIGHTNESS ► PICTURE RESET ► ▲▼:SEL SET:NEXT EXIT:RETURN MENU:EXIT MENU
4	 Press the SET button to accept the selected sub menu.	 Press the INPUT button to accept the selected sub menu.	 PICTURE RESET NO YES ▲▼:SEL SET:SET EXIT:RETURN MENU:EXIT MENU
5	 Press the ▲ / ▼ button to select the setting and then press the SET button to accept it.	 Press the ▲ / ▼ button to select the setting and then press the INPUT button to accept it.	 PICTURE RESET NO YES ▲▼:SEL SET:SET EXIT:RETURN MENU:EXIT MENU

The OSD screen disappears when you press the MENU button on the wireless remote control 1 time or the EXIT button on the monitor 3 times after step 5.

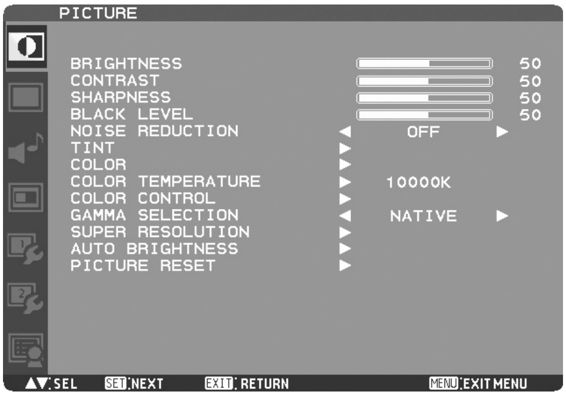
NOTE:

Besides the example described above, some items are selected or adjusted by the PLUS (+) and MINUS (-) buttons.

Operate the buttons according to the control button guide displayed at the bottom of the OSD screen.

OSD screen functions

PICTURE



```
PICTURE

BRIGHTNESS                                50
CONTRAST                                  50
SHARPNESS                                 50
BLACK LEVEL                               50
NOISE REDUCTION          ◄    OFF    ►
TINT                     ►
COLOR                    ►
COLOR TEMPERATURE        ►  10000K
COLOR CONTROL            ►
GAMMA SELECTION          ◄   NATIVE  ►
SUPER RESOLUTION         ►
AUTO BRIGHTNESS          ►
PICTURE RESET            ►

▲▼:SEL   SET:NEXT   EXIT: RETURN        MENU:EXIT MENU
```

■ BRIGHTNESS

You can adjust the brightness.
Press the PLUS (+) button to increase the brightness. Press the MINUS (-) button to decrease the brightness.

NOTE: You cannot adjust this item when BRIGHTNESS of SCREEN SAVER in the CONFIGURATION1 menu is ON.

■ CONTRAST

You can adjust the contrast.
Adjust the contrast using the PLUS (+) or MINUS (-) button to obtain a desired result.

NOTE: Brightness changes luminance of the backlight. Contrast changes signal levels, and therefore it is likely to lead to whiteness.

This adjustment doesn't work in the sRGB picture mode.

■ SHARPNESS

You can adjust the sharpness.
Press the PLUS (+) button to make the image look sharper.
Press the MINUS (-) button to make the image look softer.

NOTE: If you increase the sharpness setting value too much, lines may appear double. In such a case, decrease the sharpness setting value.

■ BLACK LEVEL

You can adjust the brightness in the dark area of the image. Press the PLUS (+) button to brighten dark areas in the image. Press the MINUS (-) button to further darken the dark area of the image.

NOTE: This adjustment doesn't work in the sRGB picture mode.

■ NOISE REDUCTION

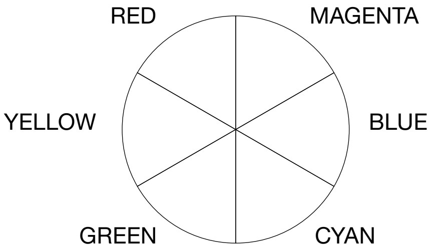
* This function doesn't work on RGB input signals.

You can adjust the noise reduction level.
Press the PLUS (+) button to increase the value to lessen the noise.

NOTE: This adjustment doesn't work in the sRGB picture mode.

■ TINT

[TINT]:
You can adjust all the colors at the same time. Press the PLUS (+) button to add a green tint. Press the MINUS (-) button to add a purple tint.
[RED], [MAGENTA], [BLUE], [CYAN], [GREEN], or [YELLOW]:
You can adjust each color individually. Press the PLUS (+) button to shift the selected color to the right around the color circle. Press the MINUS (-) button to shift the selected color to the left around the color circle.



Color circle

NOTE: This adjustment doesn't work in the sRGB picture mode.

■ COLOR

[COLOR]:
You can adjust all the colors at the same time. Press the PLUS (+) button to deepen the colors. Press the MINUS (-) button to lighten the colors.
[RED], [MAGENTA], [BLUE], [CYAN], [GREEN], or [YELLOW]:
You can adjust each color individually. Press the PLUS (+) button to deepen the selected color. Press the MINUS (-) button to lighten the selected color.

NOTE: This adjustment doesn't work in the sRGB picture mode.

■ COLOR TEMPERATURE

You can adjust the color temperature.
The image becomes reddish as the color temperature decreases, and it becomes bluish as the color temperature increases.

NOTE: This adjustment doesn't work in the sRGB picture mode.

■ COLOR CONTROL

The color levels of red, green, and blue are adjusted by the color bars.
R: Red, G: Green, B: Blue

NOTE: This adjustment doesn't work in the sRGB picture mode.

OSD screen functions (continued)

■ GAMMA SELECTION

You can select the gamma mode from NATIVE, S GAMMA, 2.2, 2.4, OPTION, and PROGRAMMABLE.

PROGRAMMABLE can change the GAMMA characteristic curve via a computer.
Contact your dealer for further details.

NOTE: GAMMA is fixed to 2.2 in the sRGB picture mode. When PROGRAMMABLE has been selected, the setting for color temperature is fixed at 10,000 K (NATIVE).

■ SUPER RESOLUTION

NOTE: This adjustment doesn't work in the sRGB picture mode.

[SUPER RESOLUTION]

Still photos, natural images and videos may benefit with enhanced resolution by adjusting this setting.
You can adjust the effect at 10 levels using the adjustment bar (0 to 100) in 10 steps.

[RESOLUTION DETECT]

This function applies optimum effect to the input images depending on their resolution.
You can set this item when the super resolution level is other than 0% (off).

AUTO: The resolution of the input image is automatically recognized and the effect suitable for the recognized resolution is applied.
HD: The effect suitable for high resolution images is applied.
SD: The effect suitable for standard resolution images is applied.
LD: The effect suitable for low resolution images such as video stream content is applied.

NOTE: The effect of the super resolution technique varies depending on the type and resolution of the input image. Noise or flicker may occur depending on the displayed content.

■ AUTO BRIGHTNESS

This function controls the screen brightness depending on the ambient light for easy viewing.
In addition, it changes the screen brightness depending on the ambient light and what are displayed on the screen to reduce power consumption as low as possible.

NOTE: This adjustment doesn't work in the sRGB or CINEMA picture mode.

[AUTO BRIGHTNESS]

AUTO: The settings of AUTO BRIGHTNESS are adjusted automatically.
NOTE: When you select AUTO, you cannot adjust any other items than [CONTROL] individually.
LOCAL: The AUTO BRIGHTNESS function is enabled and you can adjust [CONTROL] and subsequent items individually.
REMOTE: The AUTO BRIGHTNESS function is enabled. In addition, the monitor enters the intercommunication mode where multiple monitors are controlled collectively. (See page 60.)
OFF: This function is disabled.

[CONTROL]

PRIMARY: Select this setting to configure the monitor as Master when controlling multiple monitors collectively.
SECONDARY: Select this setting to use the monitor alone or to configure the monitor as Slave when controlling multiple monitors collectively.

[LIGHT FROM BACK]

This function is enabled only when [REAR SENSOR] is ON. When a light source such as a light and a window is behind the monitor, the rear sensor takes precedence.

YES: Select this setting when there is a light source such lighting equipment and a window behind the monitor.
NO: Select this setting when there is no light source such lighting equipment and a window behind the monitor.

[BACK WALL]

This function is enabled only when [REAR SENSOR] is ON. Select the following settings according to the distance between the rear of the monitor and the wall or window.

FAR: The distance is 5 meters or longer.
NEAR: The distance is 5 meters or shorter.

[FRONT SENSOR]

Select ON for normal use.

OFF: Select this setting when the sensor on the front panel is shielded.

[REAR SENSOR]

Select ON for normal use.

OFF: Select this setting when the sensor on the rear panel is shielded.

[SATURATION]

ON: The image saturation is adjusted depending on the ambient light.
OFF: Image saturation isn't adjusted.

[VIDEO DETECT]

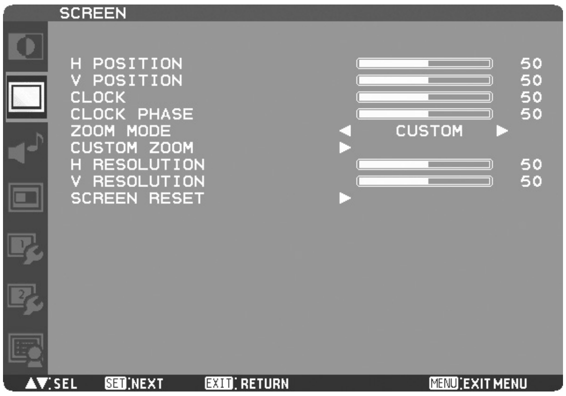
ON: The screen brightness varies depending on what are displayed on the screen to reduce power consumption of the monitor.
OFF: The screen brightness doesn't vary and the power consumption isn't reduced.

■ PICTURE RESET

You can reset all the PICTURE settings to the factory defaults.

OSD screen functions (continued)

SCREEN


SCREEN

H POSITION 50
V POSITION 50
CLOCK 50
CLOCK PHASE 50
ZOOM MODE ◄ CUSTOM ►
CUSTOM ZOOM ►
H RESOLUTION 50
V RESOLUTION 50
SCREEN RESET ►

■ H POSITION

You can adjust the horizontal image position.
Press the PLUS (+) button to move the image to the right.
Press the MINUS (-) button to move the image to the left.

■ V POSITION

You can adjust the vertical image position.
Press the PLUS (+) button to move the image up. Press the MINUS (-) button to move the image down.

■ CLOCK

* For the D-SUB inputs only.

You can adjust the image size of the computer and eliminate blurred letters.
Press the PLUS (+) button to expand the width of the image on the screen to the right. Press the MINUS (-) button to narrow the width of the image on the screen to the left.

■ CLOCK PHASE

* For the D-SUB inputs only.

You can adjust the level of the periodic variation of the screen flicker.

■ ZOOM MODE

You can select the mode to stretch the image to fit it to the screen.
For the HDMI1, HDMI2, DVI-D, D-SUB, and DISPLAYPORT inputs, you can select FULL, NORMAL, CUSTOM, or REAL.
For YPbPr, S-VIDEO, and VIDEO, you can select FULL, NORMAL, DYNAMIC, CUSTOM, or REAL.

FULL:	The image is stretched to fill the screen regardless of its aspect ratio.
NORMAL:	The image is stretched vertically to the full height of the screen while keeping the aspect ratio.
DYNAMIC:	The image is stretched to fill the screen with different magnifications at the screen center and the screen edges.
CUSTOM:	You can stretch the image horizontally and vertically as you desire using the CUSTOM ZOOM setting.
REAL:	The image is displayed without being stretched or reduced.

NOTE: The DYNAMIC mode displays images having the 16:9 aspect ratio, such as those with 1920 x 1080 resolution, in the same way as in the FULL mode.

■ CUSTOM ZOOM

CUSTOM ZOOM becomes selectable when you set ZOOM MODE to CUSTOM.

ZOOM:	You can expand the horizontal and vertical sizes simultaneously.
H ZOOM:	You can expand the horizontal size only.
V ZOOM:	You can expand the vertical size only.
H POSITION:	Pressing the PLUS (+) button moves the image to the right. Pressing the MINUS (-) button moves the image to the left.
V POSITION:	Pressing the PLUS (+) button moves the image up. Pressing the MINUS (-) button moves the image down.

■ H RESOLUTION

* For the D-SUB inputs only.

Use this setting when AUTO SETUP and AUTO ADJUST cannot obtain the horizontal resolution of the input signal.
Press the PLUS (+) button to increase the resolution. Press the MINUS (-) button to decrease the resolution.

■ V RESOLUTION

* For the D-SUB inputs only.

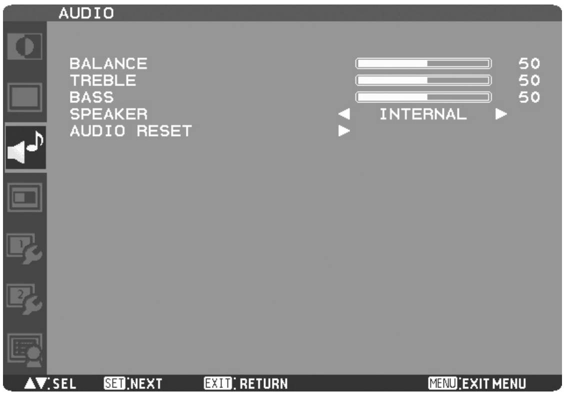
Use this setting when AUTO SETUP and AUTO ADJUST cannot obtain the vertical resolution of the input signal.
Press the PLUS (+) button to increase the resolution. Press the MINUS (-) button to decrease the resolution.

■ SCREEN RESET

You can reset all the SCREEN settings to the factory defaults.

OSD screen functions (continued)

AUDIO



AUDIO

BALANCE 50
TREBLE 50
BASS 50
SPEAKER ◀ INTERNAL ▶
AUDIO RESET ▶

BALANCE

You can adjust the balance of the right and left volumes.
Press the PLUS (+) button to decrease the left volume.
Press the MINUS (-) button to decrease the right volume.

TREBLE

You can adjust the high frequency sound.
Press the PLUS (+) button to increase the treble sound.
Press the MINUS (-) button to decrease the treble sound.

BASS

You can adjust the low frequency sound.
Press the PLUS (+) button to increase the bass sound.
Press the MINUS (-) button to decrease the bass sound.

SPEAKER

You can switch the built-in speakers and external stereo speakers (option).

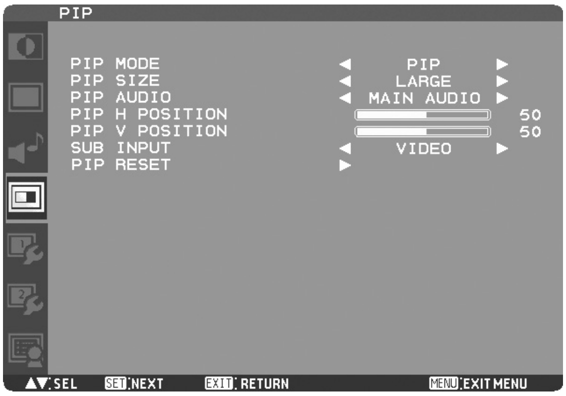
INTERNAL:	To output from the built-in speakers (Maximum output 10 W + 10 W)
EXTERNAL:	To output from external speakers (Maximum output 10 W + 10 W)

AUDIO RESET

You can reset all the AUDIO settings to the factory defaults.

PIP (PICTURE IN PICTURE)

NOTE:
The PIP and POP functions don't work in the CUSTOM and REAL picture size modes.
Refer to "PIP, POP function" for details. (See page 61.)

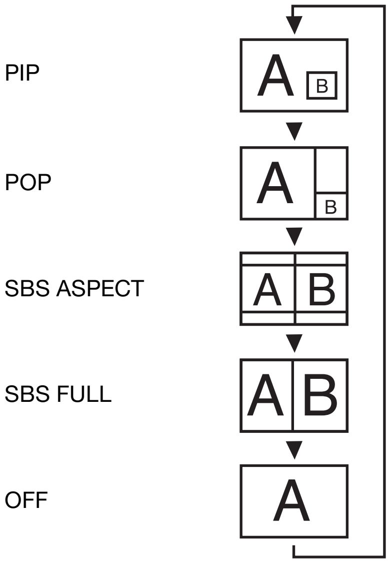


PIP

PIP MODE ◄ PIP ►
PIP SIZE ◄ LARGE ►
PIP AUDIO ◄ MAIN AUDIO ►
PIP H POSITION 50
PIP V POSITION 50
SUB INPUT ◄ VIDEO ►
PIP RESET ►

■ PIP MODE

You can select the PIP mode from PIP, POP, SBS ASPECT, SBS FULL, and OFF using the PLUS (+) and MINUS (-) buttons. See page 61.



* SBS: SIDE BY SIDE

■ PIP SIZE

You can select the size of the sub picture displayed in the PIP mode.
You can move the sub picture by pressing the UP (▲), DOWN (▼), PLUS (+), and MINUS (-) buttons.

■ PIP AUDIO

You can select the audio output in the PIP mode.
When MAIN is selected, audio of the main picture is output.
When SUB is selected, audio of the sub picture is output.

■ PIP H POSITION

You can adjust the horizontal position of the sub screen. Press the PLUS (+) button to move the sub screen to the right. Press the MINUS (-) button to move the sub screen to the left.

■ PIP V POSITION

You can adjust the vertical position of the sub screen. Press the PLUS (+) button to move the sub screen up. Press the MINUS (-) button to move the sub screen down.

■ SUB INPUT

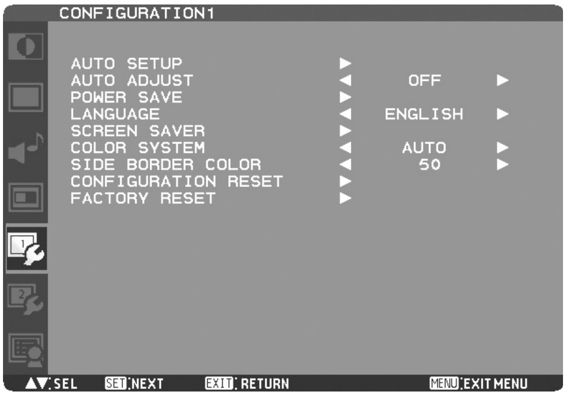
You can select the video input for the sub screen from HDMI, DVI-D, D-SUB, YPbPr, S-VIDEO, and VIDEO.

■ PIP RESET

You can reset all the PIP settings to the factory defaults.

OSD screen functions (continued)

CONFIGURATION1



CONFIGURATION1

AUTO SETUP ►
AUTO ADJUST ◄ OFF ►
POWER SAVE ►
LANGUAGE ◄ ENGLISH ►
SCREEN SAVER ►
COLOR SYSTEM ◄ AUTO ►
SIDE BORDER COLOR ◄ 50 ►
CONFIGURATION RESET ►
FACTORY RESET ►

■ AUTO SETUP

* For the D-SUB inputs only.

The screen size, horizontal/vertical position, clock, clock phase, and input signal level are automatically adjusted.

■ AUTO ADJUST

* For the D-SUB inputs only.

When AUTO ADJUST is ON, the horizontal position, vertical position, and clock phase are automatically adjusted at the time of the timing switching.

■ POWER SAVE

When the power saver in the OSD menu is turned ON, the power management function works.

RGB: When the sync signal of computer input (HDMI1, HDMI2, DVI-D, D-SUB, or DISPLAYPORT) is terminated, the monitor will be in the sleep mode in several seconds.

VIDEO: When the sync signal of video input (YPbPr, S-VIDEO, or VIDEO) is terminated, the monitor will be in the sleep mode in approximately 10 minutes.

NOTE: When an expansion module is in the option slot, this function is invalid and the monitor doesn't enter the sleep mode even when you set this function to ON. Even when you select other image source, the monitor doesn't enter the sleep mode.

■ LANGUAGE

OSD control menus are available in eight languages. (English, German, Spanish, French, Italian, Swedish, Chinese, and Japanese)

■ SCREEN SAVER

You can set the SCREEN SAVER functions to reduce the risk of "image persistence."

GAMMA:
When you select ON, the gamma mode where image persistence is difficult to occur is used.

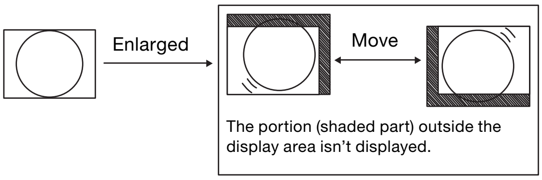
COOLING FAN:
When you select ON, the cooling fan always runs.
When you select AUTO, the built-in fan automatically starts running according to the operating temperature.

BRIGHTNESS:
When you select ON, the brightness decreases.

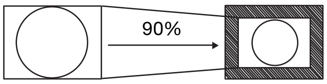
MOTION:
The screen slightly moves horizontally and vertically at regular intervals to reduce the effect of the image persistence.

NOTE: While TILING in the ADVANCED OPTION menu is active, you cannot set MOTION to ON.

When you select a time period in the MOTION setting, the monitor enlarges the image and moves it horizontally and vertically. The portions of the image out of the display area aren't visible.
To make the entire image visible all the time, arrange it to fit within 90% of the screen area at the center.


Enlarged
Move
The portion (shaded part) outside the display area isn't displayed.

Motion



■ COLOR SYSTEM

* For the S-VIDEO and VIDEO inputs only.

You can select the color system depending on the video device you use.

AUTO:	NTSC, PAL, SECAM, PAL-60 or 4.43 NTSC is automatically selected.
NTSC:	NTSC
PAL:	PAL
SECAM:	SECAM
4.43NTSC:	4.43 NTSC
PAL-60:	PAL-60

NOTE: When you use a video device purchased from overseas, set the COLOR SYSTEM menu.

■ SIDE BORDER COLOR

You can adjust the brightness of the area where no images are displayed when a 4:3 image is displayed in the NORMAL mode in the ZOOM MODE or the POP or other modes in the PIP MODE.

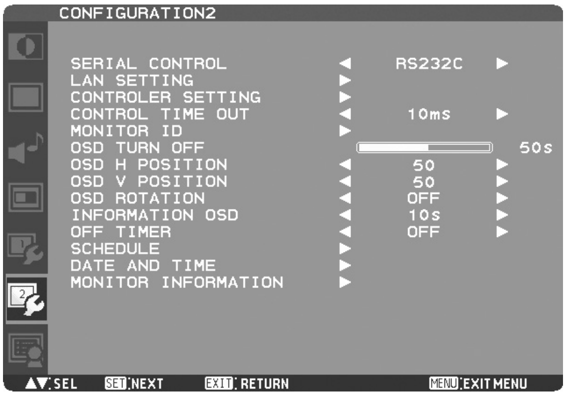
■ CONFIGURATION RESET

The settings made in the CONFIGURATION1 and CONFIGURATION2 menus are reset to the factory defaults. However, the LANGUAGE, MONITOR ID, SCHEDULE, and DATE AND TIME settings aren't reset.

■ FACTORY RESET

The settings made in the PICTURE, SCREEN, AUDIO, CONFIGURATION1, CONFIGURATION2, and ADVANCED OPTION menus are reset to the factory defaults.
In addition, the picture mode selected by the wireless remote control is reset to the factory default.
However, LANGUAGE, CONTROL TIME OUT, MONITOR ID, SCHEDULE, DATE AND TIME, and DDC/CI aren't reset.

CONFIGURATION2



CONFIGURATION2

SERIAL CONTROL	◄ RS232C ►	
LAN SETTING	►	
CONTROLER SETTING	►	
CONTROL TIME OUT	◄ 10ms ►	
MONITOR ID	►	
OSD TURN OFF		50s
OSD H POSITION	◄ 50 ►	
OSD V POSITION	◄ 50 ►	
OSD ROTATION	◄ OFF ►	
INFORMATION OSD	◄ 10s ►	
OFF TIMER	◄ OFF ►	
SCHEDULE	►	
DATE AND TIME	►	
MONITOR INFORMATION	►	

■ SERIAL CONTROL

Select the communication interface (RS-232C, OPS (OPS-compliant computer), or LAN) for the serial communication function.
For connection of the signal cable, see page 25 to 29.

■ LAN SETTING

You can set the communication parameters for the LAN network.

DHCP CLIENT
  Select whether to use DHCP client or not.
  Select OFF when not using it, and select ON when using it.

IP ADDRESS
  When DHCP CLIENT is OFF, set the IP address of the monitor.
  When DHCP CLIENT is ON, you can check the value set by the DHCP server.

SUBNET MASK
  When DHCP CLIENT is OFF, set the gateway mask. Set it to 255.255.255.0 for normal use.
  When DHCP CLIENT is ON, you can check the value set by the DHCP server.

DEFAULT GATEWAY
  When DHCP CLIENT is OFF, set the IP address of the gateway router to externally connect the local area including the monitor.
  When DHCP CLIENT is ON, you can check the value set by the DHCP server.

PORT
  The port number (3007 and 63007) of the monitor is displayed.

RESET
  LAN settings are reset.

■ CONTROLLER SETTING

When controlling the monitor via a network using a 2-Series control processor made by Crestron, set the communication parameters.

CONTROLLER IP
  Set the IP address of the control processor.

PORT NUMBER
  Set the port number used for communication.

IP ID
  Set the IP identification number.

NOTE: For the detailed setting procedures, see the operation manual of the control processor made by Crestron.

■ CONTROL TIME OUT

When using remote control, the timeout for transmission intervals among codes within the control command can be set.

10 ms: Set the time out intervals to 10 milliseconds.
2 s: Set the time out intervals to 2 seconds.
30 s: Set the time out intervals to 30 seconds.

■ MONITOR ID

ID numbers for wireless remote control are assigned to MDT552S monitors that are multi-connected via RS-232C.
ID numbers 1 to 26 are selectable.

■ OSD TURN OFF

The OSD control menu will stay on as long as it is used.
The preset choices are 5 -120 seconds.

■ OSD H POSITION

You can adjust the horizontal position of the OSD menu.

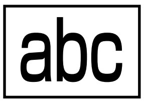
■ OSD V POSITION

You can adjust the vertical position of the OSD menu.

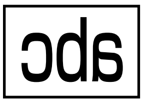
■ OSD ROTATION

The OSD screen is rotated.

OFF

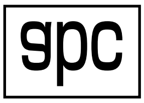


H MIRROR



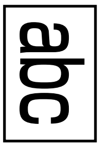
Horizontally rotated

V MIRROR



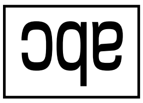
Vertically rotated

90L



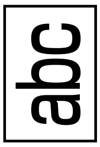
90 degree rotation

180



180 degree rotation

90R



270 degree rotation

OSD screen functions (continued)

■ INFORMATION OSD

You can enable and disable the information OSD display.
The display time is selectable from 3 to 10 seconds.
NOTE: The information OSD display shows a message when the input source is switched, the input signal state is changed, or the input signal has an error.

■ OFF TIMER

You can select the OFF TIMER mode.
Select the time period to automatically turn off the power from 1 to 24 hours.
NOTE: When OFF TIMER is enabled, the SCHEDULE settings (see page 40) will be disabled.

■ SCHEDULE

You can program the LCD monitor operation schedules. (See page 41.)

< HOW TO SETUP SCHEDULE >

Using the “SCHEDULE” function allows you to set up to seven different scheduled time intervals when the LCD Monitor will be activated.
You can select the time the monitor turns on and turns off, the day of week the monitor is activated, and which input source the monitor will use for each scheduled activation period. A check mark in the box next to the number of the schedule indicates that the selected schedule is in effect.
To select which schedule to set, use the up/down arrows to move the number (1 to 7) of the schedule.
Use the (+) and (-) buttons to move the cursor horizontally within the particular schedule. Use the ▲ and ▼ buttons to increase the time and select the input port. The “SET” button is used to make a selection.
If you create a schedule but do not want to set the power on time, select “--” in the “ON” time slot.
If you do not want to use a power off time select “--” in the “OFF” time slot.
If there is no input selected (“--” showing in the input spot) the input from the previous schedule will be used.
The selection of EVERY DAY within a schedule takes priority over other schedules that are set up to operate weekly.
When schedules are overlapping, scheduled Power ON time has priority over scheduled Power OFF time.
If there are two schedules programmed for the same time, then the highest numbered schedule has priority.
When OFF TIMER is enabled, the “SCHEDULE” settings are disabled.

■ DATE AND TIME

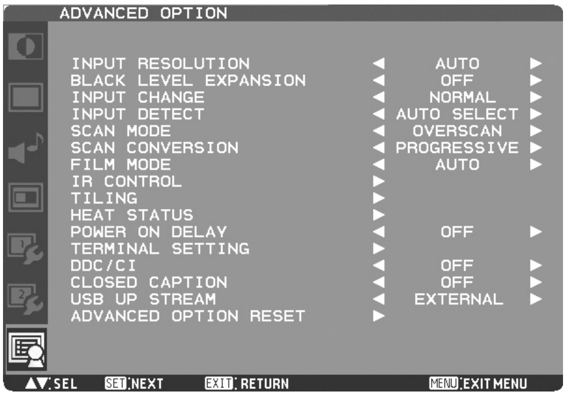
You can adjust the current date and time for the internal clock.
You must set this item when using SCHEDULE.
After competing the setting, be sure to press the SET button (button ❺ on page 10). When using a button of the monitor, use the INPUT button (button ❺ on page 8).

■ MONITOR INFORMATION

The model name and the serial number of your monitor are displayed.
The MAC address of LAN is displayed.

OSD screen functions (continued)

ADVANCED OPTION



ADVANCED OPTION

INPUT RESOLUTION	◀ AUTO ▶	
BLACK LEVEL EXPANSION	◀ OFF ▶	
INPUT CHANGE	◀ NORMAL ▶	
INPUT DETECT	◀ AUTO SELECT ▶	
SCAN MODE	◀ OVERSCAN ▶	
SCAN CONVERSION	◀ PROGRESSIVE ▶	
FILM MODE	◀ AUTO ▶	
IR CONTROL	▶	
TILING	▶	
HEAT STATUS	▶	
POWER ON DELAY	◀ OFF ▶	
TERMINAL SETTING	▶	
DDC/CI	◀ OFF ▶	
CLOSED CAPTION	◀ OFF ▶	
USB UP STREAM	◀ EXTERNAL ▶	
ADVANCED OPTION RESET	▶	

■ INPUT RESOLUTION

* For the D-SUB inputs only.

If the monitor fails to recognize the input signal resolution correctly, you can select a proper resolution manually.
Only when a signal having a resolution close to any of the following values from three groups, the values in the most appropriate group are selectable.

Group 1: AUTO, 1024 x 768, 1280 x 768, 1360 x 768, 1366 x 768
Group 2: AUTO, 1400 x 1050, 1680 x 1050
Group 3: AUTO, 1600 x 1200, 1920 x 1200

■ BLACK LEVEL EXPANSION

* For the HDMI1-HD, HDMI2-HD, DVI-D-HD, DISPLAYPORT (YCbCr signal), OPTION (YCbCr signal), YPbPr, S-VIDEO, and VIDEO inputs only.

Select the level of black expansion from OFF, MIDDLE, and HIGH.

■ INPUT CHANGE

You can select the time for input switching from QUICK and NORMAL.

NOTE: When you select QUICK, slight noise may appear.

■ INPUT DETECT

This function detects whether the video signals are present or not at the video inputs and automatically select them. The priority applies when more than one signal is input at the same time. The signal being displayed isn't changed even when a signal with higher priority is input.

AUTO SELECT

The target video inputs are DVI-D and D-SUB. When the currently selected input signal is lost, this function checks whether the signal is present at the other input. When present, the other input is automatically selected.
If no signal is present at both inputs for five seconds, the monitor enters the sleep mode.
When an expansion module such as the SDI BOX is in the option slot, OPTION is targeted instead of DVI-D.
The priority of the input signal is as follows:
DVI-D > D-SUB

NOTE: You cannot select other inputs than DVI-D, OPTION, and D-SUB.

When an expansion module is mounted, the monitor doesn't enter the sleep mode.

VIDEO DETECT

The target video inputs are HDMI1, YPbPr, S-VIDEO, VIDEO, and D-SUB.
When the HDMI1, YPbPr, S-VIDEO, or VIDEO input is detected, the detected input is automatically selected.
When the video signal being displayed is lost, the D-SUB input is automatically selected.
The priority of the input signal is as follows:
HDMI1 > YPbPr > VIDEO > S-VIDEO

NOTE: You cannot select HDMI2, DVI-D, OPTION, and DISPLAYPORT.

When an expansion module is mounted, the monitor doesn't enter the sleep mode.

OFF

The video input isn't selected automatically.

■ SCAN MODE

* This function doesn't work when the D-SUB video input is selected.

You can select the image display area.

OVERSCAN: About 95% of the input image is displayed.
UNDERSCAN: Almost 100% of the input image is displayed.

■ SCAN CONVERSION

* This function doesn't work when the D-SUB video input is selected.
It works on interlace signals only.

You can select the IP conversion mode.

PROGRESSIVE: Interlace signals are converted into progressive signals. Select this setting for normal cases.
INTERLACE: Interlace signals are displayed without being converted. Though this setting is suitable for motion images, still images aren't displayed properly.

■ FILM MODE

* This function doesn't work when the D-SUB video input is selected.
It works on interlace signals only.

You can select the film mode function.

AUTO: Images of 24 frames per second are detected, subjected to interpolation, and then displayed.
OFF: The input video signals are displayed without being subjected to any processing.

NOTE: When FILM MODE is AUTO, set SCAN CONVERSION to PROGRESSIVE. See page 56.

IR CONTROL

You can lock the wireless remote control.
Select from the following 4 modes using the ▲ and ▼ buttons and then determine the selected mode by pressing the SET button.

NORMAL:	All the remote control operations are enabled.
PRIMARY:	The first MDT552S monitor of those multi-connected via RS-232C is designated as PRIMARY.
SECONDARY:	MDT552S monitors other than the first one multi-connected via RS-232C are designated as SECONDARY.
LOCK:	All the remote control operations are disabled.

NOTE: When you hold down the DISPLAY button on the wireless remote control for at least 5 seconds, the NORMAL mode is activated.
You can lock the wireless remote control independently from the control buttons on the rear of the monitor. See page 58.

TILING

TILING is a function to divide or enlarge images and display them across multiple screens. You can divide an input video up to five pieces horizontally and vertically and display them on a single large screen comprised of up to 25 (5 x 5) monitors tiled together.

NOTE: A same video signal needs to be input to each monitor. When different monitors need to be adjusted so that their tint can be identical, it is recommended to use a signal distributor (commercially available).

When TILING is activated, PIP, POP, SBS, and STILL are disabled.
TILING doesn't work in the REAL picture size mode.

While TILING is active, you cannot set MOTION of SCREEN SAVER in the CONFIGURATION1 menu to ON.

H MONITORS:	Select the number of images obtained by horizontal division.
V MONITORS:	Select the number of images obtained by vertical division.
POSITION:	Select the area you want to enlarge.
FRAME COMP.:	When displaying an image across multiple monitors, you can select the mode to compensate for the bezel widths for smooth and natural display.
ENABLE:	When you select ON, the image in the selected area is enlarged on the screen.

HEAT STATUS

The statuses of the cooling fan, brightness, and internal temperature are displayed.

NOTE: The cooling fan starts running according to the operating temperature or when COOLING FAN is ON in the SCREEN SAVER menu.
When the operating temperature substantially exceeds the operation guaranteed range, the message "TEMPERATURE WARNING" is displayed on the screen.

POWER ON DELAY

You can adjust the delayed time until the power-on mode is activated at the time of recovery from the sleep mode or power-on.
The time is selectable from OFF and 2, 4, 6, 8, 10, 20, 30, 40, and 50 seconds.

TERMINAL SETTING

You can select the mode to display the HDMI1, HDMI2, or DVI-D signal according to their signal format depending on their source device.

HDMI SIGNAL:
Select this setting when displaying HDMI1, HDMI2, or OPTION (when an OPS-compliant computer is mounted).
Select FULL when displaying the signal that uses all 256 levels (from level 0 to 255). This mode is used primarily when input comes from a computer.
Select LIMITED when displaying the signal that uses 16 to 235 levels of 256 levels for each of R, G, and B. This mode is used primarily when input comes from a video device.

HDMI MODE:
Select this setting when displaying the HDMI1 or HDMI2 signal.
Select HDMI-HD when the source device is a video device.
Select HDMI-PC when the source device is a PC.

DVI MODE:
Select this setting when displaying the DVI-D signal.
Select DVI-PC when the source device is a PC.
Select DVI-HD when the source device is a video device.

DDC/CI

Use to turn ON or OFF the DDC/CI communication function.
Select ON for normal use.

CLOSED CAPTION

You can select to display or hide captions.

OFF:	Captions are hidden.
CC1:	Captions are displayed in sync with the primary audio.
CC2:	Information (related to the primary audio) is displayed without sync.
CC3:	Captions are displayed in sync with the secondary audio.
CC4:	Information (related to the secondary audio) is displayed without sync.
TT1/TT2/TT3/TT4:	Four types of information not related to the displayed images are displayed. (For example, news and weather forecast.)

NOTE: Check with each supplier of your video software and external video devices in advance whether they are compliant with EIA-608-A.
If their video signals are not compliant with it, images may not be displayed correctly.

USB UPSTREAM

You can select either of the 2 upstream ports and distribute the signal to 2 downstream ports.

EXTERNAL:	External computer is selected.
OPS:	OPS-compliant computer is selected.

ADVANCED OPTION RESET

The settings made in the ADVANCED OPTION menus are reset to the factory defaults.
However, HDMI MODE, DVI MODE, and DDC/CI aren't reset.

Other functions

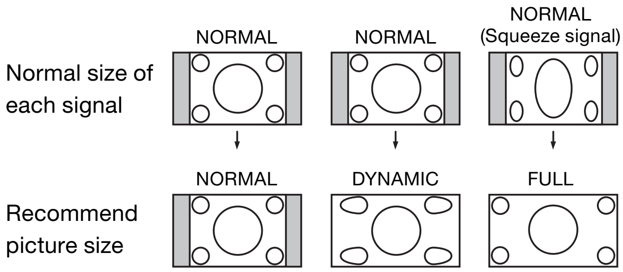
Picture size

HDMI1, HDMI2, DVI-D, D-SUB, OPTION (OPS-compliant computer), DISPLAYPORT

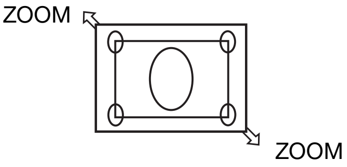
FULL → NORMAL → CUSTOM → REAL → (back to FULL)

OPTION (SDI), YPbPr, VIDEO, S-VIDEO

FULL → NORMAL → DYNAMIC → CUSTOM → REAL → (back to FULL)



NORMAL:	Images supplied from external devices such as PC and DVD fit the screen, keeping their original aspect ratio.
FULL:	Images are displayed on the entire screen.
DYNAMIC:	4:3 images are enlarged on the entire screen with non-linearity. (Round images may be cut when enlarged.)
CUSTOM (ZOOM):	You can enlarge the displayed images beyond the active display area. The portions of the image out of the display area aren't visible.
REAL:	Images are displayed in their original sizes.



Picture mode

HDMI1*, HDMI2*, DVI-D, D-SUB, OPTION (OPS-compliant computer), DISPLAYPORT

HIGHBRIGHT → STANDARD → sRGB → (back to HIGHBRIGHT)

HDMI1*, HDMI2*, OPTION (SDI), YPbPr, VIDEO, S-VIDEO

HIGHBRIGHT → STANDARD → CINEMA → (back to HIGHBRIGHT)

* Automatically selected depending on the input signal.

Control Lock mode

You can lock the operation buttons so that the image adjustments you made aren't changed even when the buttons are pressed.

By holding down both the ▲ and ▼ button on the monitor for 3 seconds or longer, you can lock the operation buttons.

By holding down both the ▲ and ▼ button on the monitor for 3 seconds or longer again, you can unlock the operation buttons.

OSD information

HDMI1, HDMI2, DVI-D, D-SUB, DISPLAYPORT

DVI-D	← Current selection (DVI-D)
1024 x 768 48kHz 60Hz	← Resolution Horizontal/vertical frequency
AUDIO : ANALOG	← Audio input mode
SIZE : FULL	← Picture size mode

OPTION (SDI)

OPTION : SDI (3G)	← 3G-SDI format is selected.
1920 x 1080 67kHz 60Hz	← Resolution Horizontal/vertical frequency
AUDIO : SDI	← Audio input mode
SIZE : FULL	← Picture size mode

OPTION (OPS-compliant computer)

OPTION : PC	← Current selection (OPTION (OPS-compliant computer))
1920 x 1080 67kHz 60Hz	← Resolution Horizontal/vertical frequency
AUDIO : OPS DIGITAL	← Audio input mode
SIZE : FULL	← Picture size mode

YPbPr

YPbPr	← Current selection (YPbPr)
AUDIO : ANALOG	← Audio input mode
SIZE : FULL	← Picture size mode

S-VIDEO, VIDEO

S-VIDEO	← Current selection (S-VIDEO)
NTSC	← Color system mode
AUDIO : ANALOG	← Audio input mode
SIZE : FULL	← Picture size mode

PIP, POP

Main : DVI-D

Sub : S-VIDEO

DVI-D 1024 x 768 48kHz 60Hz	← Main picture information
AUDIO : ANALOG	← Audio input mode
S-VIDEO NTSC	← Sub picture information
SIZE : FULL	← Main picture size

Audio input change

You can select the audio input using the AUDIO INPUT button.
Note that the selectable audio inputs vary depending on the currently selected video signal input.

Selection of the video signal input		Operation
HDMI1 or HDMI2		ANALOG ←→ HDMI*
DVI-D		ANALOG only
D-SUB		ANALOG only
OPTION**	PC (OPS-compliant computer)	ANALOG ←→ OPS ANALOG ←→ OPS DIGITAL
	SDI (SDI BOX)	ANALOG ←→ SDI
DISPLAYPORT		ANALOG ←→ DISPLAYPORT
YPbPr		ANALOG only
S-VIDEO		ANALOG only
VIDEO		ANALOG only

* The audio of HDMI1 or HDMI2 being selected is output as the HDMI audio.

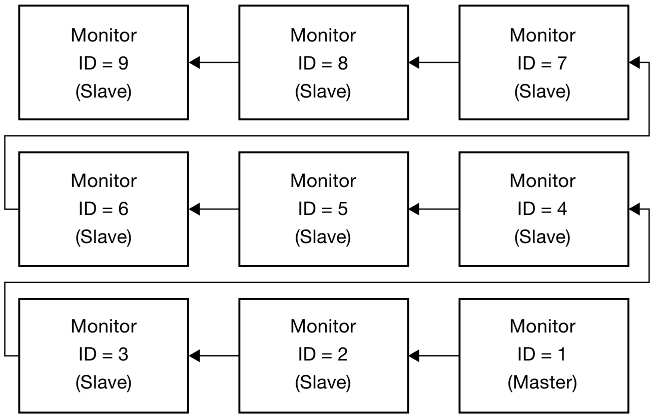
** OPTION can be used when an expansion module is mounted on the option slot.

Supplemental information of the auto brightness function

To control multiple monitors collectively

In such a case where the tiling function is used, you can control the auto brightness function by sharing the detection result of the brightness sensor of a certain monitor among the connected monitors.

1. Multi-connect the monitors using RS-232C cables (commercially available) as shown by the example below.



Master: Monitor configured as Master that detects the outside light (Monitor ID is “1”.)
Slave: Monitor controlled by the Master monitor (Monitor ID is other than “1”.)

2. Assign a monitor ID to each multi-connected MDT552S using MONITOR ID. (See page 54.)
   Monitor ID is selectable from 1 to 26.
   The monitor ID of the Master monitor should be “1” and those of the Slave monitors should be other than “1”.
   You are recommended to assign IDs to the monitors consecutively from 1, 2, 3, and on.
3. Set AUTO BRIGHTNESS on the OSD screen (PICTURE) as follows.

	AUTO BRIGHTNESS	CONTROL
Master monitor	LOCAL	PRIMARY
Slave monitors	REMOTE	SECONDARY

To use a computer to control the monitors

When using a computer to control the monitors, you must prepare an application software program for control by yourself.
Brightness of all the monitors can be controlled centrally using a computer, if the customer create a control application to remotely read the value from two brightness sensors of any monitor and distribute it to all monitors.

1. Connect the RS-232C IN connector of the Master monitor shown above and the RS-232C connector of the computer using an RS-232C cable.
   The communication control function via LAN isn’t supported on the monitor alone, however, it is available when the monitor is used with the computer.
2. Assign a monitor ID to each multi-connected MDT552S using MONITOR ID. (See page 54.)
   Monitor ID is selectable from 1 to 26.
3. Set AUTO BRIGHTNESS on the OSD screen (PICTURE) as follows.

	AUTO BRIGHTNESS	CONTROL
Master monitor	REMOTE	SECONDARY
Slave monitors	REMOTE	SECONDARY

4. A control application made by the customer reads the value from two brightness sensors of any monitor and distributes it to all monitors. For the specifications of the communication commands, contact your dealer.

PIP, POP function

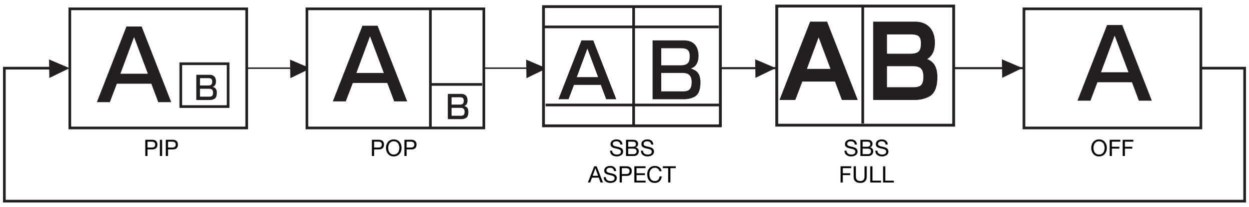
The following table shows the combinations of signal inputs with which the “PIP” and “POP” modes function. However, these modes do not function when the screen size is “CUSTOM” or “REAL”.

		Sub screen								
		HDMI1	HDMI2	DVI-D	D-SUB	OPTION*	DISPLAY PORT	YPbPr	S-VIDEO	VIDEO
Main screen	HDMI1	×	×	×	×	×	×	×	○	○
	HDMI2	×	×	×	×	×	×	×	○	○
	DVI-D	×	×	×	×	×	×	×	○	○
	D-SUB	×	×	×	×	×	×	×	○	○
	OPTION*	×	×	×	×	×	×	×	○	○
	DISPLAYPORT	×	×	×	×	×	×	×	○	○
	YPbPr	×	×	×	×	×	×	×	○	○
	S-VIDEO	○	○	○	○	○	○	○	×	×
	VIDEO	○	○	○	○	○	○	○	×	×

○ : Supported × : Not supported

* OPTION can be used when an expansion module is mounted on the option slot.

By pressing the PIP ON/OFF button on the wireless remote control, you can change the PIP, POP, and SBS modes in the order shown below.
Alternatively, you can change the modes using the PIP MODE setting of PIP in the OSD main menu. See page 52.



The resolutions in the PIP and SBS FULL modes are as follows:

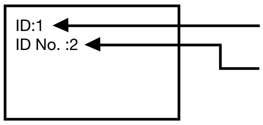
PIP SIZE < SMALL > : 450 pixels X 338 pixels
< MIDDLE > : 675 pixels X 450 pixels
< LARGE > : 900 pixels X 675 pixels
SBS FULL : 960 pixels X 1080 pixels

NOTE:
When the PIP or SBS FULL mode has been selected, images in the sub picture always fit the size of each mode shown above irrespective of the aspect ratio of the input image.

Remote control numbering function

By connecting multiple MDT552S monitors using RS-232C cables, you can control any one monitor or all the monitors by one remote controller.

1. Assign arbitrary ID number to each of multi-connected MDT552S monitors using MONITOR ID.
   ID numbers 1 to 26 are selectable.
   It is recommended to assign sequential ID numbers from 1 and up.
2. The remote control mode of the first MDT552S monitor is set to PRIMARY and those of the other monitors are set to SECONDARY.
3. When you direct the remote controller at the remote control signal sensor of the PRIMARY monitor and press the DISPLAY button on the remote controller, the ID selection OSD appears at the upper left of the screen.



ID number of the currently viewed monitor

Select the ID number of the monitor you want to control using the +/- button on the remote controller.
The ID of the monitor you want to control is displayed at the upper left of its screen.
By selecting ALL, you can control all the multi-connected monitors.

4. Direct the remote controller at the remote control signal sensor of the PRIMARY monitor.
   OSD appears on the monitor having the ID number you selected.

NOTE:
When the ID selection OSD is being displayed on the PRIMARY monitor, press the DISPLAY button on the remote controller again to cancel the ID selection OSD and then control the monitor you selected.

If you set the remote control mode wrongly and remote control operation becomes unavailable, press any button on the control panel of the monitor to display the OSD screen and change the remote control mode using ADVANCED OPTION. By pressing and holding down the DISPLAY button on the remote control for 5 seconds or longer, the remote control mode is initialized to NORMAL.

Troubleshooting

No picture

- The signal cable should be securely connected to the display card/computer.
- The display card should be securely seated in its slot.
- The Main Power Switch and the computer power switch should be in the ON position.
- Make sure that the correct mode has been selected on the display card or system being used. (Please consult the display card or system manual to change the graphics mode.)
- Check the monitor and your display card with respect to the compatibility and recommended settings.
- Check the signal cable connectors for bent or pushed-in pins.

Power button does not respond

- Unplug the power cord of the monitor from the AC outlet to turn off and reset the monitor.

Image persistence

- Please be aware that LCD Technology may experience a phenomenon known as “image persistence.” Image persistence occurs when a residual or “ghost” image of a previous image remains visible on the screen. Unlike CRT monitors, LCD monitors’ image persistence is not permanent, but constant images being displayed for a long period of time should be avoided. To alleviate image persistence, turn off the monitor for as long as the previous image was displayed. For example, if an image was on the monitor for one hour and a residual image remains, the monitor should be turned off for one hour to erase the image.

  NOTE:
  As with all display devices, MITSUBISHI ELECTRIC recommends displaying moving images and using a moving screen saver at regular intervals whenever the screen is idle or turning off the monitor when not in use.

Image is unstable, unfocused or swimming is apparent

- Signal cable should be securely attached to the computer.
- Use the OSD Image Adjust controls to focus and adjust the display by increasing or decreasing the fine adjustment. When the display mode is changed, the OSD Image Adjust settings may need to be re-adjusted.
- Check the monitor and your display card with respect to the compatibility and recommended signal timings.
- If the displayed text is garbled, change the video mode to the non-interlace mode and use 60 Hz refresh rate.

Image of component signal is greenish

- Check to see if the YPbPr input connector is selected.

LED on the monitor is not lit (No green or red color can be seen)

- Power Switch should be in the ON position and power cord should be connected.
- Make certain the computer is not in the power-saving mode (touch the keyboard or mouse).

RED LED on the monitor is blinking

- A certain failure may have occurred. Please contact your nearest authorized MITSUBISHI ELECTRIC service facility.

Displayed image is not sized properly

- Use the OSD Image Adjust controls to increase or decrease the coarse adjustment.
- Make sure that the correct mode has been selected on the display card or system being used. (Please consult the display card or system manual to change the graphics mode.)

Selected resolution is not displayed properly

- Use OSD Display Mode to enter Information menu and check that the appropriate resolution has been selected. If not, select corresponding option.

No sound

- Check to see if the speaker cable is properly connected.
- Check to see if the mute is activated.
- Check to see if the volume is set to the minimum level.

Wireless remote control is not available

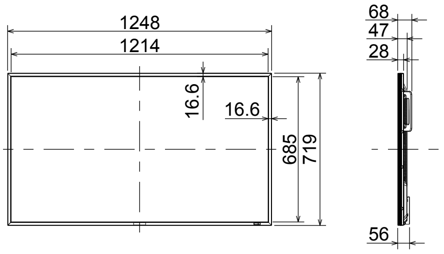
- Check the wireless remote control’s batteries status.
- Check if the batteries are inserted correctly.
- Check if the wireless remote control is pointing at the monitor’s remote sensor.

“SCHEDULE”/“OFF TIMER” function is not working properly

- The “SCHEDULE” function will be disabled when the “OFF TIMER” is set.
- If the “OFF TIMER” function is enabled and the power to the LCD monitor is turned off if the power supply is interrupted unexpectedly, then the “OFF TIMER” will be reset.

Either light vertical or horizontal stripes may appear, depending on the specific display pattern. This is no product fault or degradation.

Specifications

Model				MDT552S
Orientation				Landscape/Portrait/Face-up
Dimension (Unit: mm)				 1248 1214 16.6 16.6 685 719 68 47 28 56
LCD Module	Screen size (diagonal)			54.6” (1388 mm)
	Panel Type			VA
	Pixel Pitch			0.630 mm
	Resolution			1920 x 1080 pixels
	Color			Approximately 1.06 billion colors
	Brightness (typ.)			450 cd/m^2
	Contrast ratio			4000 : 1
	Viewing Angle (CR≧10)			Up/Down 178°, Left/Right 178°
	Response time			6.5 ms (Gray to Gray)
Viewable Size (H x V)				1209.6 mm x 680.4 mm / 47.6” x 26.8”
Power Management				VESA DPM
Plug and Play				VESA DDC2B, DDC/CI
Auto Adjustment				Yes (Contrast / Position / Phase / Clock)
OSD user functions				Brightness, Contrast, Black level, Auto brightness, Zoom, PIP, Screen saver, Side border color, Gamma selection, Heat status, Power on delay, Schedule, Tiling, LAN control, Closed caption, Super resolution, etc.
Input / Output Signal	PC Input / Output	Input Connector	(Analog)	MINI D-SUB 15-pin (PC/AV Common)
			(Digital)	HDMI x 2 (PC/AV Common), DVI-D (HDCP supported), DISPLAYPORT
		Output Connector	(Digital)	DVI-D (HDCP supported)
		Horizontal Frequency		Analog: 15.625/15.734, 31.5 kHz - 91.1 kHz, Digital: 31.5 kHz - 91.1 kHz
		Vertical Frequency		50/58 Hz - 85 Hz
		Pixel Clock	(Analog)	13.5 - 165.0 MHz
			(Digital)	25.0 - 165.0 MHz
		Video Signal		Analog: Analog RGB, Digital: TMDS (with HDCP)
		Sync Signal		Analog: Separate (TTL), Composite (TTL), Sync on Green, Digital: TMDS
		Supported Resolution		640 x 480, 800 x 600, 1024 x 768, 1280 x 768, 1360 x 768, 1280 x 1024, 1600 x 1200 (Compressed/Simplified), 1920 x 1080, 1920 x 1200 (Compressed/Simplified)
	AV Input / Output	Input Connector	(Analog)	Composite <BNC>, Separate (Y/C) <S-TERMINAL>, MINI D-SUB 15-pin (PC/AV Common)
			(Digital)	HDMI x 2 (PC/AV Common), SDI (option)
		Output Connector		Analog: Composite <BNC>, Digital: SDI (option)
		Supported Resolution		Composite/S-terminal: NTSC, PAL, SECAM, 4.43 NTSC, PAL-60 Component: 480i, 480p, 576i, 576p, 1080i, 720p, 1080p SDI: 480i/576i (SD-SDI), 720p/1080i (HD-SDI), 1080p (3G-SDI)
	Audio Input / Output	Input Connector	(Analog)	ø3.5-mm stereo mini jack
			(Digital)	HDMI x 2 (digital audio), DISPLAYPORT, SDI (option)
		Output Connector	(Analog)	ø3.5-mm stereo mini jack
			(Digital)	SDI (option)
		External speaker output		Speaker connector L/R (impedance 8 Ω)
	Option slot	Slot interface		Digital (OPS) slot
	Built-in Speaker Output			Audio output 10 W + 10 W (stereo)
	External Speaker Output			Special external speaker (option), audio output 10 W + 10 W (stereo)
	Control Input / Output	Input Connector		RS-232C <D-SUB 9-pin>, LAN <Modular 8-pin>
		Output Connector		RS-232C <D-SUB 9-pin>
USB hub				2 upstream / 2 downstream, USB2.0
Power Supply	Input Voltage / Current			1.8 A - 0.8 A @AC100 - 240 V, 50/60 Hz
	Power Consumption			186 W (133 W without speaker, option slot)
	Power Consumption at Power Saving			Sleep mode: Less than 1 W Power switch off: Less than 1 W Main power switch off: 0 W
Operation Environment	Temperature			0 - 40°C / 32 - 104°F (Landscape position), 0 - 35°C / 32 - 95°F (Portrait position, Face-up position)
	Humidity			20 - 80% (without condensation)
Storage Environment	Temperature			-20 - 60°C / -4 - 140°F
	Humidity			10 - 90% (Without condensation) / 90% - 3.5% x (Temp-40°C) regarding over 40°C
Dimension (W x H x D)	Net (without stand)			1248 mm (W) x 719 mm (H) x 47 / 68 mm (D) / 49.1” (W) x 28.3” (H) x 1.9 / 2.7” (D)
	Gross			1470 mm (W) x 945 mm (H) x 284 mm (D) / 57.9” (W) x 37.2” (H) x 11.2” (D)
Weight	Net (without stand)			Approximately 28.5 kg / 62.8 lbs
	Gross			Approximately 40.5 kg / 89.3 lbs
Wall mounting interface				9-M6 Screws holes (200 mm / 7.9” pitches) for Monitor mount
Complied regulatory and guidelines				UL60950-1 / C-UL / EN60950-1 / CE / BSMI / GOST-R / FCC-A / DOC-A / EN55022-A / EN55024 / EN61000-3-2 / EN61000-3-3 / C-Tick / Energy Star / RoHS / US Mercury / CCC

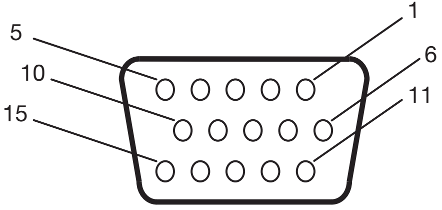
NOTE: Technical specifications are subject to change without notice.

Pin Assignment

1) Analog RGB input: D-SUB

Pin No	Name	Pin No	Name
1	Video Signal Red	9	+5V (DDC)
2	Video Signal Green	10	SYNC-GND
3	Video Signal Blue	11	GND
4	GND	12	DDC-SDA
5	DDC-GND	13	H-SYNC
6	Red-GND	14	V-SYNC
7	Green-GND	15	DDC-SCL
8	Blue-GND		

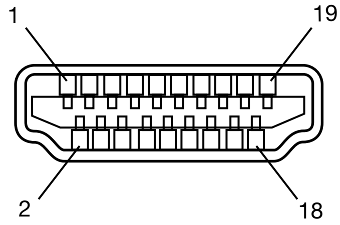
Mini D-SUB 15-pin



2) Digital RGB input: HDMI

Pin - Assignment of HDMI connector:					
1	TMDS Data2+	8	TMDS Data0 Shield	15	SCL
2	TMDS Data2 Shield	9	TMDS Data0-	16	SDA
3	TMDS Data2-	10	TMDS Clock+	17	DDC/CEC Ground
4	TMDS Data1+	11	TMDS Clock Shield	18	+5V Power
5	TMDS Data1 Shield	12	TMDS Clock-	19	Hot Plug Detect
6	TMDS Data1-	13	CEC		
7	TMDS Data0+	14	Reserved (N.C. on device)		

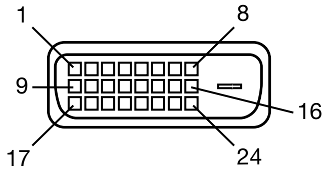
HDMI



3) Digital RGB input: DVI-D

Pin - Assignment of DVI-D connector:					
1	TMDS Data2-	9	TMDS Data1-	17	TMDS Data0-
2	TMDS Data2+	10	TMDS Data1+	18	TMDS Data0+
3	TMDS Data2 Shield	11	TMDS Data1 Shield	19	TMDS Data0 Shield
4	NC	12	NC	20	NC
5	NC	13	NC	21	NC
6	DDC Clock	14	+5V Power	22	TMDS Clock Shield
7	DDC Data	15	Ground (return for +5V, H-SYNC and V-SYNC)	23	TMDS Clock+
8	Analog Vertical Sync	16	Hot Plug Detect	24	TMDS Clock-

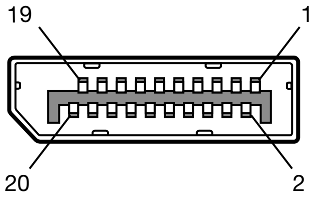
DVI-D



4) Digital RGB input: DISPLAYPORT

Pin No	Name	Pin No	Name
1	ML_Lane 3 (n)	11	GND Top
2	GND	12	ML_Lane 0 (p)
3	ML_Lane 3 (p)	13	CONFIG1
4	ML_Lane 2 (n)	14	CONFIG2
5	GND	15	AUX CH (p)
6	ML_Lane 2 (p)	16	GND
7	ML_Lane 1 (n)	17	AUX CH (n)
8	GND	18	Hot Plug Detect
9	ML_Lane 1 (p)	19	Return
10	ML_Lane 0 (n)	20	DP_PWR

DISPLAYPORT

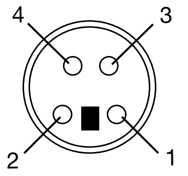


Pin Assignment (continued)

5) S-VIDEO input (MINI DIN 4-pin)

Pin No	Name
1	GND
2	GND
3	Y (Luminance)
4	C (Chroma)

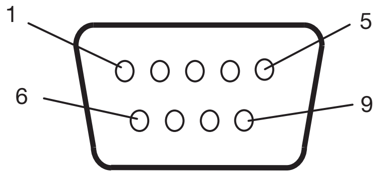
MINI DIN 4-pin



6) RS-232C input/output

Pin No	Name
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

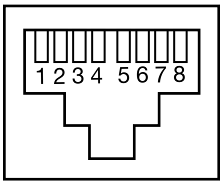
D-SUB 9-pin



7) LAN (Modular 8-pin)

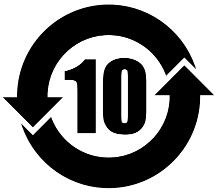
Pin# at RJ45	Signal	Pair
#1	Orange/White stripe	
#2	Orange	
#3	Green/White stripe	
#4	Blue	
#5	Blue/White stripe	
#6	Green	
#7	Brown/White stripe	
#8	Brown	

Modular 8-pin



Indication following “Controlling Pollution by Electronic Information Products” for (Product Name: LCD monitor)
(Model Name: MDT552S)

(1) Mark for Prevention and Control of Pollution by Electronic Information Products



Note: This symbol mark is China only.

This mark is the environmental friendly usage life of electronic information products applied to electronic information products sold in China, and is based on the “Prevention and Control of Pollution by Electronic Information Products Law” announced on February 28, 2006.
As long as the consumer uses the product while observing the safety and handling precautions, environmental pollution or harm to human life or properties will not result within this set limit calculated from the date of manufacture.

Note) For the environmental friendly usage life of consumable parts, such as batteries enclosed with this product, the average product life is three years. When disposing a finished product, cooperate by following local laws and regulations on the collection and recycling of electronic information products.

(2) Names of six hazardous substances contained, concentration and containing part
The names, concentration and parts of the six hazardous substances contained are listed below.

Part name	Hazardous/toxic substances or elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Printed circuit board	×	○	○	○	○	○
Liquid crystal display	×	×	○	○	○	○
Cabinet, chassis	×	○	○	○	○	○
Others (Cable, remote control, etc.)	×	○	○	○	○	○

Remarks (Meaning of ○ and ×)
○: The concentration of hazardous/toxic substances in the homogeneous material of all corresponding members does not exceed the standards set forth in SJ/T11363-2006.
×: The concentration of hazardous/toxic substances in the homogeneous materials of all corresponding members exceeds the standards set forth in SJ/T11363-2006.

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